

XXXI. Horæ Carcinologicæ, or *Notices of Crustacea*. I. *A Monograph of the Leucosiadæ, with observations on the relations, structure, habits and distribution of the family; a revision of the generic characters; and descriptions of new genera and species.* By THOMAS BELL, Esq., V.P.R.S., Pres. L.S. &c.

Read June 5th, 1855.

THERE is not perhaps another family amongst the whole of the *Decapodous Crustacea* so distinctly isolated by its general characters as the LEUCOSIADÆ. Belonging, as they obviously do, to the large tribe of *Oxystomata*, to which they are allied by the important character of the form of the buccal cavity and the structure of the foot-jaws, they have in many respects but little tangible affinity with any other family of that group, by means of intermediate aberrant forms, with the exception of a certain *primâ facie* approach to the *Calappadæ* in the genus *Oreophorus*, to which further allusion will be made.

And not only is there such a remarkable absence of any osculant form within the limits of this very natural group, but there is a no less striking want of any obvious approximation to this type in the other families of the *Oxystomata*; for the relation suggested by De Haan of the genus *Matuta*, or rather his family of *Matutoidea* comprising *Matuta* and *Hepatus*, as leading to the *Leucosiadæ*, appears to me quite devoid of any sound foundation. Still less appearance is there of any important approximation to the *Raninidæ*, as suggested by the same learned writer.

I cannot, however, but believe that there is a structural approach to this family in a genus which has hitherto been placed at a remote distance from it by all the authorities on this subject, and particularly by Professor Milne-Edwards in his recent admirable treatise, as it may be called, on the *Catametopa*. I allude to the genus *Pinnotheres*, which in the work above mentioned is associated with the families *Grapsidæ*, *Gecarcinidæ*, *Ocy-podidæ*, &c., to which groups its affinity is probably much more slight than to the family now under consideration. It will be reserved for a future occasion to examine into the real relations of the somewhat anomalous family of the *Pinnotheridæ*; but I would observe, that the general aspect of the male *Pinnotheres* is so similar to that of a true *Leucosia* as to be obvious at the first glance; and although I would not trust too much to external form and general character or aspect, I think these points may be, and often are, underrated. There is frequently a physiognomical character, so to speak, which is indicative of some close relation of affinity, which ought not to be cast aside hastily and without due consideration as a mere analogical resemblance. I shall not on the present occasion enter into a detailed investigation of the relation between these two types, but I may observe that the form of the buccal opening, the foot-jaws, the eyes, the antennæ and other important organs appear to me to afford indisputable indications of the affinity in question.

The approach of the genus *Oreophorus* to the *Calappadæ* is, however, more apparent,

and in all probability constitutes a true relation of affinity. This remarkable genus was first formed by Dr. Rüppell, who figures and describes a species, *O. horridus*\*, found by him in the Red Sea. It is evidently constructed on a type approximate to the *Calappadæ*. Like them it has the power of concealing the feet under the body, so that when at rest they are protected by the margin of the carapace, which is somewhat dilated laterally. In this particular it resembles *Æthra*, as well as *Cryptopodia*, *Lambrus* and others, with which it has however no other near structural relation. The genus *Nursia* of Leach, and the new genus *Lithadia*, which is closely allied to *Ebalia*, approach it in a slight degree in this respect, and the latter still more in its general aspect and the extreme rugosity of the body.

The tendency to a lateral dilatation of the carapace is indeed a very striking character in several forms of this family. It has been already alluded to in reference to *Oreophorus* and *Lithadia*: it appears also to a certain extent in *Phlyxia* and *Ebalia*. But in *Iphis* it assumes a very different form, terminating in a long acute spine on each side, recalling in some measure the aspect of the genus *Matuta*; whilst in *Ixa* a still more remarkable development is observed in an extraordinary lateral extension of the carapace itself, which is twice as broad as it is long, besides its still further production into a somewhat cylindrical process on each side, the two processes together constituting about half the total breadth.

The characters of a group so distinctly marked could not fail to strike the accurate and observant mind of Fabricius, who, in the course of his re-formation of the whole class, brought together all the species which were then known of the *Leucosiadæ* into a single genus, to which he gave the name of *Leucosia*. This name was retained by Leach for the form which is evidently the typical one; and he arranged into several well-defined generic groups the species thus associated by his predecessor, together with others with which he had become acquainted. All Leach's generic divisions have received the sanction of subsequent naturalists; and the only changes which have been introduced since his time have consisted in the discovery of some new species†, if we except the mistaken application, by Milne-Edwards, of the name of *Guaia* to certain species which Leach had already designated under the generic appellation of *Persephona*. This mistake however was a very natural one, arising from the vague and brief terms in which Leach had indicated rather than described or defined them. The specific and even the generic characters given by this distinguished naturalist are often, from an inordinate desire for brevity, extremely vague and incomplete; and now that the number of known species and of generic forms has become so immensely increased, it is often in vain that we endeavour to reduce to any certainty the contracted and indefinite phraseology in which his characters are expressed.

It is clearly of the greatest importance not only that the distinctive phrase applied to

\* Krabben der Rothen Meeres, p. 18. t. 4. f. 5.

† *Harrovia* and *Tlos*, genera described by Adams and White in the "Crustacea" of the Voyage of the Samarang, and placed among the *Leucosiadæ* in that work, certainly do not belong to this family. *Iphiculus* is stated by those authors to belong to the *Parthenopidæ*, although located in their work with the *Leucosiadæ*; but as regards this genus, I am led, by examination of the specimens in the British Museum, to the conviction that it is in truth a Leucosian genus, and that they are right in the text and not in the note.



a species should be as tangible and certain as possible, but that every new species should be fully, as well as accurately described in detail. In this respect Leach was generally very deficient. The only indications left of many of his species and even genera, consist of half-a-dozen words, in many instances so vague that they have become useless, and, as they are often not illustrated by figures, it would be impossible to identify the species to which they refer, were it not for the existence of the specimens themselves in the British Museum. This is particularly the case in respect to the present family, of which Leach gives many new genera and species in his valuable repertory the 'Zoological Miscellany;' but in so slight a manner that only the tickets applied to the specimens in the Museum by Leach himself afford any sure index to the species intended.

This however is not the only fault to which naturalists are prone with regard to the definition or description of new species. Nothing is more common than that the only characters given are deduced from a comparison of the development of certain organs with the same parts in nearly allied species. Such specific characters are always objectionable. To describe an organ in one species as longer or broader or thicker than the corresponding organ in another species for instance, infers the necessity of an actual comparison of one with the other, which, of course, is often impossible. Specific distinctive characters should always be either absolute, or derived from points of comparison within the individual itself. Another defect from which much confusion has arisen, is the want of a full detailed *description* of each species, which is necessary, however nearly it may be allied to another; and this should include every organ of importance that can be easily and certainly brought under review. The want of this desideratum has been the fruitful source of errors in synonymy, and the cause of interminable and unsatisfactory research and labour. I may be allowed to add, that the *specific definitive phrase* should be such as to point out, as briefly as may consist with clearness and certainty, the points of distinction from all those already known in the same genus; whilst the *description* should be so full as to enable the naturalist to ascertain whether any individual afterwards observed is a new species, or identical with that described.

The admirable work of Professor Milne-Edwards, which has been the text-book of every student of this class of animals ever since its publication, contains such a general view of their organization as renders it unnecessary for me to enter into any considerable detail of their structure, particularly as that work is in the hands of every one interested in this subject. But in the fine work of De Haan on the *Crustacea* of Japan, there occurs so concise and clear a summary of the characters of those organs on which the classification depends, that I will venture to quote the passage at length:—

“Regiones pterygostomianæ supra palpos maxillarum quintarum excavatæ, extrorsum marginatæ, excavatione parallelâ usque ad oris apicem productâ; maxillarum quintarum articuli secundi et tertii ter longiores quam lati[ores], triangulum describentes, margine interno sunt obtusi; maxillarum quintarum laciniæ externæ maxillis quintis æquales et palporum flagella tenuissima; maxillæ secundæ minimæ, laciniis externis cum palpis coalitis, et setis duabus a sibi invicem apice distinctis; sella turcica brevissima vel nulla; apodemata sterno intermedio distantia; branchiæ sex, nulla maxillis, unica pedibus tertiis;

pedes in eodem plano inserti; orificia generationis masculina in sterno locata, fœminina in medio articulo tertio sterni; abdomen arcuè cum sterno cohærens, operculiforme, in maribus 4- vel 5-, in fœminis 5-articulatum; abdominis articuli primi organa vaginæformia recta vel spiralia basi sejuncta in *Leucosiis*, vel compressa basi conjuncta in *Iliis*; organa excitantia articuli secundi, aut tertiam partem anteriorum æquant in *Leucosiis*, aut planè desiderantur in *Iliis* et *Philyris*; appendices abdominales fœminarum externæ oblongæ foliaceæ et internæ setaceæ sub angulo recto geniculatæ.”

I will now offer a few general remarks which may illustrate the bearing of their structure upon their habits. This structure is evidently not fitted for any rapid or energetic movements such as belong to the *Grapsidæ* and *Ocypodidæ*, in which these powers are amply provided for by the robust form and development of the ambulatory pairs of legs; nor does it afford any means of swimming, as in the *Portunidæ*, or still more in *Matuta*; nor is it fossorial, as in *Carcinus* and many others; nor suited for climbing, as in the long slender-legged *Leptopodiadæ*; nor for self-concealment, as in the *Calappadæ*. It appears that they must depend for their safety from external injury upon the protection of stones and the hollows of rocks; for their claws have no power of defence, and the ambulatory legs are comparatively slender and ineffective. The carapace in most of them however is remarkably hard, and its arched form gives it additional power of resistance.

The extreme minuteness of the eyes would agree with the idea of their lurking and somewhat stationary habits; and this, with the almost rudimentary form of the antennæ, appears quite inconsistent with any high development of the functions of relation. In entire agreement with the view I have taken of the slow and feeble movements of these animals, as deduced from a consideration of the structure of the organs of locomotion, is the diminished extent of their respiration, evinced by the reduction of the number of their branchiæ to six pairs, whilst the foot-jaws and other manducatory organs are also small and weak.

Of the habits of most of the animals of this family we have no recorded history; but the account which that excellent observer Roux has given of the species of *Ilia* as noticed by himself on the shores of the Mediterranean, is in exact accordance with the structure I have described, and the functions which have been predicated from that structure. Speaking of this genus, he says\*, “Les *Ilia* ont le têt très dur; ce sont des Crustacés qui vivent solitaires, cramponnés parmi les Flustres et les Madrépores, ou sur les écueils, à de moyennes profondeurs; leur marche est lente; ils manquent d’agilité; la forme de leur corps et la débilité de leurs pattes s’opposent à ce qu’ils puissent nager; on ne les voit courir qu’à l’aspect du danger.” And of *I. nucleus* he says, “Ce décapode est extrêmement timide; il habite les moyennes profondeurs coralligènes, d’où il ne sort que lorsque le hasard lui présente quelque proie facile à saisir. Il ne s’approche jamais des rochers du rivage. On le rencontre rarement parmi les algues, si ce n’est en Mars, époque à laquelle la femelle vient quelquefois y déposer des œufs qui éclosent en été.”

The geographical distribution of the *Leucosiadæ* is as remarkable for the restriction of the genera of which it is composed to special localities, as is the whole family with respect to its zoological relations, which have already been considered. Every genus, without

\* ‘Crustacés de la Méditerranée.’



exception, is restricted to its own geographical limit. There is not, I believe, a single instance of one species of any genus inhabiting the Old World, and another of the same genus being found in the New. The numerous species of what may be considered the typical form of the family, *Leucosia*, are without exception inhabitants of the Eastern seas, ranging from the south of Australia by the Indian Ocean, the Philippines, New Guinea, Borneo, the coasts of China and Japan; but strictly circumscribed to these limits. The genera *Myra*, *Philyra*, *Myrodes*, *Platebalia*, *Ixa*, *Iphis*, *Iphiculus*, and *Arcania* are also confined to the same seas. Of *Oreophorus* one species is found in the Red Sea, and the other has been taken in the Straits of Sunda. *Ebalia* is, as far as we are at present informed, confined to the tract including the coasts of Great Britain, "La Manche," and the Mediterranean; and so much is it especially a British genus, that Professor Milne-Edwards, when he published his great work, had never seen a specimen of either of the three generally known species, excepting those in the British Museum, all of which were natives of this country; nor does he mention a specimen of either of them as then existing in the Paris Museum. *Ilia* is exclusively Mediterranean. The numerous species of *Persephona*, and the new genera *Leucosilia* and *Lithadia*, are strictly American, and are principally found on the Eastern coasts and the Galapagos Islands.

The majority of the species in this family are found at no great depth.

I know of scarcely any family of *Crustacea*, our knowledge of the species of which has so much increased of late years as this. When the great text-book of the class, the admirable work of Milne-Edwards, appeared, there were only known to him twenty certain species arranged in eleven genera. The great work of De Haan on the *Crustacea* of Japan added several others, and the list has been increased by Messrs. Adams and White in their description of the *Crustacea* from the voyage of the Samarang. The collections made by Mr. Cuming in the Philippine Islands and by other voyagers, have placed within my reach numerous others, some of which are in my own collection, but the greater number are in the British Museum; and I have to express my thanks to Mr. Adam White for the exercise of his well-known courtesy and attention in assisting my access to the treasures of that fine collection. In the present Monograph I have been enabled to add no less than thirty-six new species, thus more than doubling the number previously known; the whole number now known and included in the present Monograph being sixty-five, constituting eighteen genera.

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#### Genus LEUCOSIA.

CHAR. GEN.—*Testa* ovato-orbicularis, subglobosa, lævis, polita; fronte subproducto, fossulas antennarias tegente. *Orbita* fissuris tribus. *Fossæ antennariæ* obliquæ, apertæ. *Pedipalpi externi* caule exteriore lateribus parallelis, recto vel subcurvo, apice obtuso; caule interiore acutè triangulari. *Pedes antici* crassiores, longitudine mediocres; brachiis ad basin et ad latera tuberculatis; digitis tenuibus subinflectis; *pedum paria quatuor posteriora*, a secundo ad quintum sensim breviora. *Abdomen* MARIS in nonnullis speciebus segmentis omnibus, primo et ultimo exceptis, in aliis tertio cum quarto, et quinto cum sexto—FÆMINÆ a tertio ad sextum coalitis.

The genus *Leucosia* must be considered as the type of the family; and, as is often, perhaps generally, the case with a typical genus, it includes a much larger number of

species than any other. Its characters are so defined, that none of the species exhibit any approximation to another generic form. The genera *Myra* and *Persephona*, and *Ilia* and *Leucosilia*, have so much that is common to them all in their structure and general aspect, that it requires close examination to determine their limits; but in *Leucosia*, numerous as the species are, not only the essential characters of the parts on which the generic distinction usually depends, but also the general features of the whole form, are remarkably similar in all the species, and obviously distinct from all others.

There are indeed in this genus many interesting points in the general form and colour and other less essential characters, which although not of much physiological or functional import, are curious as exhibiting coincidences which in many cases serve to indicate a close relationship as strongly as those modifications of organs and functions which have a more important bearing upon the habits of the species, and are commonly considered as essential. The polished carapace;—the absence of all hairiness or other clothing, which is universal, with the exception of two species, *L. Whitei* and *unidentata*, in which a small quantity of close hair exists amongst the tubercles of the arms;—the existence of large and distinct granulations, or rather tubercles, generally distinctly coloured, upon at least the proximal part of the arm, extending forward in lines more or less numerous;—the tendency to a brown or purplish-brown colour in most of the species;—and the occurrence, in very many, of spots occupying the same situation on the carapace, four of which are paler than the ground colour, and placed at the anterior part on the gastric region, and two dark ones upon the posterior portion of the branchial;—these are amongst the characters of minor consequence to which I have alluded, and which, without having any bearing upon function or habit, are interesting from the constancy or frequency of their occurrence, and as indicative of certain structural or formal tendencies throughout the whole genus.

There is also one remarkable peculiarity which exists in almost all the species of *Leucosia*, but I believe in no other genus, the variations of which constitute good specific characters. This is a sinuous groove running along the side of the thorax, bounded above by the lateral margin of the carapace, and beneath by the upper edge of the epimeral plate; the former loses itself in the posterior part of the branchial region, the latter is continued into the posterior margin of the carapace. It commences in front of the first pair of legs, where it forms a single or double notch, or a deep, almost circular cavity. Its margins are usually tuberculated, and the tubercles are ordinarily largest at the anterior part. A very few species, as for instance *L. orbicularis*, have no such groove, the epimeral piece or space between the lateral margin and the junction of the carapace with the sternum being plain and smooth. De Haan is the only author who has noticed this curious structure, and he has only mentioned its anterior limit, which he terms “*incisio ante chelarum insertionem.*” This expression, however, gives no idea of its true extent or course; and I have called it “*sinus thoracicus,*” as more expressive of its character, and more easily available in specific description. Of its use I can offer no suggestion. It does not appear to have any connexion with the interior of the body, nor can it be supposed to have any important office, as in some species it does not exist.

In the year 1837, when Professor Milne-Edwards published his ‘*Histoire Naturelle des Crustacés,*’ two species only of this genus were distinguished, *L. Urania* and *craniolaris*.



These were both known to the earlier naturalists. One of them is figured by Rumphius and Seba, and both by Herbst in his great repertory of crustacean animals. Fabricius, Lichtenstein, Leach, Desmarest, and others down to Edwards, have restricted their notice to these two species. De Haan, in his admirable work on the Crustacea of Japan, forming a portion of the great work of Siebold, adds four species, and Messrs. Adams and White have described a seventh in the Voyage of the Samarang. The additions, however, which have recently been made to the carcinology of the Eastern Seas by Hinds, Macgillivray and others, and especially by Mr. Cuming in his Philippine voyage, have enabled me to swell the list of distinct species to no fewer than twenty.

*LEUCOSIA URANIA*, Herbst. Testâ subglobosâ, antiè productâ, fronte rotundato; brachiis triedris, suprâ ad basin tubereulis paucis; sinu thoracico usque ad latera regionis hepaticæ antiè attingente, granis suprâ marginato.

Rumph. t. 10. f. A. B. Seba, iii. t. 19. f. 4, 5.

*Cancer Urania*, Herbst, iii. t. 53. f. 3.

*Leucosia Urania*, Leach, Zool. Misc. iii. p. 21. Edw. Règ. Anim. de Cuv., Crust. t. 25. f. 2; Hist. Nat. des Crust. ii. p. 122.

*Hab.* Maria orientalia. Muss. Brit., Bell.

The colouring of this species is remarkable. Of a general pale brownish-grey; the front, and a large mark proceeding backwards from it are white; two large spots on the posterior part of the carapace, and two smaller ones on each lateral margin, the articulations of the fore legs, the basal portion of the fingers, and a ring on each joint of the ambulatory feet, are all of a more or less deep orange colour\*.

Specimens of the species are not unfrequently brought with other objects from China, and these are almost always deprived of the abdomen, for the purpose of cleaning the interior.

The tubercles on the arms are disposed in a remarkable manner. On the upper side near the base there is a congeries of about five or six small ones, and immediately in front of them four large ones disposed in a quadrate form. On each margin there is a series of tubercles, which are large near the base, diminishing forwards. The anterior portion of the three sides is free from tubercles, excepting on the margins.

*LEUCOSIA CRANIOLARIS*, Linn. Testâ rhomboideâ, fronte tridentato; brachiis serie tuberculorum ad latera, et tubereulis duobus tantùm suprâ ad basin.

*Cancer craniolaris*, Linn. Mus. Lud. Ulr. p. 431. Herbst, t. 2. f. 17.

*Leucosia craniolaris*, Fabr. Supp. p. 350. Leach, Zool. Misc. iii. p. 21. Edw. Hist. Nat. des Crust. ii. p. 122.

*Hab.* ad oras maris orientalis. Muss. Brit., Soc. Linn., Bell.

This well-known species is easily distinguished from every other by the paucity of the tubercles on the arm. The three sides are bordered, as in other species, with a series of tubercles, but there are no others, excepting two above and about the same number beneath, at the base. The carapace is remarkably rhomboidal, the front tridentate, the

\* There are specimens in the British Museum in which this colouring is not distinct, but these are probably bleached.

middle tooth being longer than the lateral; the thoracic sinus terminates anteriorly in a notch, which reaches upwards to the margin of the carapace between the hepatic and branchial regions. The abdomen is long, lanceolate, and slightly hastate at the base. This is one of the two species so often figured and described, and the only ones known until within the last few years. It is very probably the *Cancer craniolaris* of Linnæus, and certainly that figured under this name by Herbst; it is the *Leucosia craniolaris* of Fabricius and all subsequent authors. There are several specimens in the British Museum, in the Banksian Collection of the Linnean Society, and in my own collection. It inhabits the Eastern Seas, being found on the coast of China, &c.

There are several other species which resemble it in some degree in general form and proportions, but the paucity of tubercles on the arm sufficiently distinguishes it from them all, excepting *L. rhomboidalis* of De Haan, which is certainly very nearly allied to it, but differs in the hairy surface of the arms.

*LEUCOSIA OBTUSIFRONS*, De Haan. Fronte rotundato; sinu thoracico anticè circulari, tuberculis circumscripto; brachiis ad latera et ad basin tuberculatis; manibus longioribus quam latioribus, serie granulorum ad marginem interiorem.

De Haan, Crust. Japon. p. 133. t. 33. f. 2.

*Hab.* ad ins. Japoniam. Mus. Brit.

*LEUCOSIA UNIDENTATA*, De Haan. Fronte unidentato; sinu thoracico anticè circulari, tuberculis perlatis circumscripto; brachiis facie superiore seriebus binis tuberculorum.

De Haan, Crust. Japon. p. 133. t. 33. f. 3.

*Hab.* Japonia, ins. Moluccenses, &c. Mus. Brit., Bell.

*LEUCOSIA RHOMBOIDALIS*, De Haan. Testâ rhomboidali, anticè productâ, multò longiore quam latiore; brachiis basi utrinque densè tomentosis, lateribus tuberculatis, suprâ plerumque lævibus.

De Haan, Crust. Japon. p. 132. t. 33. f. 5.

*Hab.* —? Mus. Brit.

*LEUCOSIA LONGIFRONS*, De Haan. Testâ subglobosâ, fronte producto, integerrimo; sinu thoracico anticè elliptico, granis non cincto; brachiis lateribus tuberculatis et granulis paucis ad basin.

De Haan, Crust. Japon. p. 132. t. 33. f. 4.

*Hab.* —? Mus. Brit.

*LEUCOSIA ORBICULARIS*, mihi (TAB. XXX. fig. 1). Testâ orbiculari, fronte lato, brevissimo, bidentato; sinu thoracico nullo; sterno in utroque sexu anticè granulato.

*Hab.* ad oras Australiæ. Mus. Brit., Bell.

The carapace in this species offers the nearest approach to the orbicular form of any of the genus. The front remarkably broad, scarcely projecting, and slightly bidentate; hepatic region not distinct; marginal line nearly smooth anteriorly, the marginal granulations becoming conspicuous over the branchial region, and continued in an uninterrupted



line around the posterior margin. There is no trace of the thoracic sinus. External foot-jaws extending quite to the extremity of the front, the anterior portion slightly granulated, and the external stalk (palp) with the margin slightly curved. The sternum in each sex is bordered anteriorly with a line of distinct granulations. Abdomen of the male with the sides parallel to within one-third of the extremity, the remainder triangular, with a strong projecting tooth. The anterior legs twice as long as the breadth of the carapace; the arm above covered with granulations for about half its length, the remainder quite smooth; wrist rounded, perfectly smooth; hand half as long again as it is broad, slightly flattened, without any carina or granulations; the fingers long, curved, meeting only at the points, and furnished with a few distant teeth.

Length of the carapace 0·9 in.

Several specimens of this species from Australia exist in my own collection and in the British Museum.

*LEUCOSIA PALLIDA*, mihi (TAB. XXX. fig. 2). Fronte tridentato, ultra orbitâ producto; sinu thoracico in sulco brevi profundo anticè terminato, granulis paucis supra insertionem pedum anteriorum; manibus utrinque subcarinatis omninò lævibus; digitis inermibus.

*Hab.* in mari orientali. Mus. Brit.

Carapace contracted anteriorly, rounded and very convex behind; front tridentate, projecting beyond the orbits; latero-anterior margin waved, granulated; hepatic region slightly elevated; posterior margin projecting; thoracic sinus terminating anteriorly in a deep hollow, in which are a few large granulations just above the insertion of the anterior legs. Abdomen as in *L. affinis*. External pedipalp smooth in the male; a slight projection on the middle of the inner stalk in some females. Anterior legs of moderate length; arm granulated on the upper surface, excepting an oval space on the distal third of its length; the under surface with all the middle and anterior portion smooth; wrist small, rounded, and smooth; hand longer than it is broad, slightly carinated on each side, without any granulations; fingers meeting at the anterior third of their length, without any teeth or tubercles.

Colour pale grey, marbled with a somewhat darker hue; four whitish spots on the anterior part of the carapace, and two dark ones behind.

Length of carapace 0·8 in.

Several specimens of this pretty species are in the British Museum, obtained from the Voyage of the Samarang.

In general colour it is very different from any other; but it has the four anterior pale and the two posterior dark spots which prevail so remarkably in this genus.

*LEUCOSIA OBSCURA*, mihi (TAB. XXX. fig. 3). Testâ suborbiculari, rostro ultra orbitâ producto, minutè tridentato; sinu thoracico angustissimo; manibus longioribus quam latioribus, utrinque carinatis, non granulatis; digitis inermibus.

*Hab.* ad insulas Philippinas. Muss. Brit., Bell.

Carapace suborbicular, front tridentate, the middle tooth the longest; margin granu-

lated, latero-anterior portion slightly waved, posterior margin a little projecting. Thoracic sinus deep, very narrow, terminating anteriorly in a narrow double notch, which is furnished beneath with a few large granulations. External pedipalps in the male quite smooth; in the female the stalk has the basal half much raised; the inner edge hairy. Anterior legs rather longer than the carapace; the arm granulated above, excepting the anterior tubercle; wrist smooth; hand longer than broad, carinated on each side, wholly without granulations, fingers meeting only at the points, without teeth or tubercles, the fifth pair with the penultimate joint as broad as it is long. Abdomen in the male with two rounded smooth elevations at the base, narrowest towards the centre; in the female broad oval, widened towards the anterior part.

Length of the carapace 0·9 in.

Colour rich brown above, the two posterior spots darker; light brown beneath.

Several specimens in the British Museum and in my own collection were brought from the Philippines by Mr. Cuming.

*LEUCOSIA MARMOREA*, mihi (TAB. XXX. fig. 4). Testâ longiore quam latiore, maculis sex albidis; sinu thoracico anticè brevi, lineâ semicirculari granulata terminato; fronte minutè tridentato, dente medio longiore; brachiis ad basin et ad latera tuberculatis; manibus margine interno granulato, externo rotundato.

*Hab.* ad insulas Philippinas. Mus. Brit.

Carapace longer than broad by the whole length of the front, somewhat narrowed forwards, the latero-anterior margin nearly straight; hepatic region with a slight elevation; thoracic sinus deep, extending forwards very little in advance of the insertion of the anterior feet, and bounded by a semicircular granulated margin. Marginal granulations of the carapace extremely small and not contiguous at the anterior part, gradually enlarging and becoming flattened backwards. Front minutely tridentate, the middle tooth the longest. External foot-jaws smooth, polished, with a line of minute impressed dots near the margin. Anterior legs robust; arm on the upper side with a line of large granulations on the outer and inner margins, a few on the proximal portion, and two or three only extending forwards, the rest of the upper surface smooth; the under side with a line of similar granulations on the inner margin. Wrist smooth, rounded, with a line of minute granulations on the inner side; hand rather longer than broad, somewhat tumid in the middle, flattened towards the edges, the inner edge with a line of small granulations, the outer smooth and rounded; fingers meeting only at their points, armed with distant tubercles, and having a wide space near the joint. Abdomen (male) broad at the base, then with the sides parallel, the penultimate segment rounded at the anterior margin, and armed with a strong straight pointed tooth.

Colour rich yellowish-brown.

Length of carapace 1·4 in.

*LEUCOSIA PUNCTATA*, mihi (TAB. XXX. fig. 5). Testâ impresso-punctatâ, fronte producto, submarginato; brachiis suprâ omninò granulatis.

*Hab.* in Mari Indico. Mus. Brit.



Carapace somewhat rhomboid, rounded at the posterior margin; the front projecting beyond the orbits, slightly emarginate; hepatic region with a slight central elevation; thoracic sinus terminating anteriorly in a notch bordered with large granulations; lateral margin strongly granulated. External foot-jaws flat, smooth, with the outer margin straight. Anterior margin of the sternum granulated. Anterior pair of legs nearly twice as long as the postfrontal portion of the carapace; the arm long, with three series of larger granulations on the upper side, extending to about two-thirds of its length, the remaining portion entirely covered with smaller ones; the wrist somewhat triangular, longer than it is broad, slightly granulated above and at the sides; hand somewhat tumid in the centre, slightly carinated on each side, the inner only granulated; fingers touching only at the point, with a large interval at the base. Abdomen (male) broadest at the base, where it is furnished with two large oval protuberances; the penultimate segment oval, with its posterior margin truncate.

Length of carapace 0·8 in.

Colour greyish-brown, with two darker spots on the branchial regions.

This species, of which a single specimen exists in the British Museum, differs from all others that I am acquainted with in the very distinct punctuation of the whole surface of the carapace. The arm also is covered with minute granulations at the anterior portion, which in most species is quite smooth. In other respects it very much resembles the following species, *L. affinis*. Its habitat is not absolutely known, but it is in all probability from the Indian Ocean.

LEUCOSIA AFFINIS, mihi (TAB. XXX. fig. 6). Testâ anticè angustatâ, fronte valdè producto, submarginato; manibus longioribus quam latioribus, utrinque carinatis; brachiis anticè tumidis, lævissimis, politis.

*Hab.* ad insulas Philippinas. ♂ Mus. Bell.

Carapace somewhat rhomboid, narrowed anteriorly, with a few scattered punctures; the front much produced, with a triangular elevation extending backwards, and a depression on each side of the front, the extremity slightly emarginate, and extending beyond the orbits. The thoracic sinus short, extending backwards but little beyond the insertion of the anterior legs, terminating in front in a granulated notch. Anterior legs rather long, the arm above with about three series of granulations, which are larger at the base, becoming smaller forwards, the distal portion tumid, polished and free from granulations, excepting at the inner margin; the wrist rounded, with a single row of small regular granulations on the inner side; hand longer than broad, carinated on each side, the inner with a granulated area, bordered with large granulations; fingers meeting only at the point. Foot-jaws and abdomen as in *L. punctata*.

Length of carapace 0·7 in.

This species greatly resembles the former in most of its characters; it is however easily distinguished by the almost total absence of punctures on the carapace, and especially by the naked polished area on the distal portion of the arm.

A single specimen (male) is in my collection, received from Mr. Cuming.

LEUCOSIA BREVIMANA, mihi (TAB. XXX. fig. 7). Testâ subrhomboidali, fronte emarginato, margine laterali vix granulato; manibus æquè longis ac latis, internè subcarinatis, lævibus.

Hab. ad insulas Philippinas. Mus. Bell.

Carapace somewhat rhomboidal, rounded behind; front rather prominent, slightly emarginate; lateral margin scarcely granulated; thoracic sinus deep, narrow, extending back to the posterior part of the branchial region, its inferior boundary granulated, and continued into the posterior margin. External foot-jaws with the stalk longitudinally convex. Arms with the upper side bordered by a row of large tubercles on each side, and an intermediate one, consisting of not more than three or four at the base, the inner side presenting a smooth triangular area bounded by large tubercles; wrists smooth, short and small; hands as broad as long, smooth, slightly carinated on the inner side; fingers as long as the hand, the moveable one rather the longer. Abdomen (female) broad oval, the first and second joints with a broad carina in the middle.

Colour brownish-grey.

Length of carapace 0·8 in.

Brought from the Philippines by Mr. Cuming.

Distinguished from most other species by the absence of conspicuous granulations on the lateral margin of the carapace, by the equal length and breadth of the hands, and by the paucity of tubercles at the base of the arm.

A single female specimen is in my collection.

LEUCOSIA MARGARITACEA, mihi (TAB. XXX. fig. 8). Testâ multò longiore quam latiore, lævissimâ, margaritaceâ; sinu thoracico margine lævi; brachiis suprâ tuberculis albis, rubro cinctis.

Hab. in Oceano orientali. Mus. Brit.

Carapace about one-fifth longer than it is broad, somewhat rhomboidal (much resembling *L. punctata* and *affinis* in general form), extremely smooth and polished, and of a pearly lustre; front prominent, obtuse; thoracic sinus short, deep, with the margins not granulated; pedipalps and sternum smooth; arms covered, excepting at the distal extremity, with large granulations, which are ocellated, being white in the centre, surrounded by a red ring; wrist rounded, and wholly smooth; hands longer than they are broad, granulated only along the inner margin. Abdomen similar to that in *L. punctata* and *affinis*.

Length of the carapace 0·7 in.

A single specimen, probably from the Indian Ocean, is in the British Museum.

This species exceedingly resembles *L. punctata* and *affinis*. From the former it may be at once distinguished by the absence of all punctures on the surface of the carapace, and from both by the absence of granulations on the margins of the thoracic sinus, and by the red and white ocellated tubercles on the arm. The pearly glance on the whole surface of the carapace is peculiar to this species, and appears not to depend upon any change from external causes.



LEUCOSIA OCELLATA, mihi (TAB. XXXI. fig. 1). Testâ rhomboidali, fronte tridentato; regione gastricâ maculis quatuor parvis rubris signatâ, quarum binæ anteriores ocellatæ.

*Hab.* ad oras orientales Australiæ. Mus. Brit.

Carapace rhomboidal, nearly as broad as it is long; front tridentate; margin granulated, excepting anterior to the hepatic region, latero-anterior margin waved; thoracic sinus deep, extending to the fifth pair of legs; the four spots on the gastric region, which are in other species large and pale, replaced by very small red ones, of which the anterior pair are distinctly ocellated. Sternum and pedipalps smooth. Buccal opening very broad at the posterior part, becoming regularly narrowed forwards, forming nearly an equilateral triangle. Anterior legs stout; arm covered, excepting on the anterior part, with four rows of tubercles, each of which is white in the centre, surrounded with a red ring; wrist rounded, with a line of inconspicuous granules on the inner side. Hand rather longer than broad; the inner margin granulated; fingers meeting only at the point; the four posterior pairs of legs with the joints tumid.

Length of carapace 0·7 in.

The four red spots on the carapace, of which the anterior pair are distinctly ocellated, will at once distinguish this species from every other; and it is remarkable that a similar disposition to ocellation is observable in the colour of the tubercles on the arms.

LEUCOSIA HÆMATOSTICTA, Adams and White. “Thorace trapezoidali, suprâ valdè convexo, post angulum latero-anteriorem incisurâ profundâ, maculis multis sanguineis rotundatis obsito.”

“*Hab.* Maria orientalia.”

Adams and White, Zool. Voy. of the Samarang, p. 54. t. 12. f. 2.

Mus. Brit.

This is one of the most beautiful little species of the genus; and one of the most peculiar in its form and markings. I have taken the above characters from the work of Messrs. Adams and White, in which the species is prettily figured.

Length of the carapace 0·5 in.

LEUCOSIA WHITEI, mihi (TAB. XXXI. fig. 2). Testâ rhomboideâ, fronte producto, minutè tridentato; regionibus hepaticâ et branchiali granulis tribus vel quatuor; brachiis tomentosis, tuberculis magnis omninò instructis.

*Hab.* ad oras Australiæ. Mus. Brit.

Carapace rhomboid, nearly as broad as it is long; front distinct, produced, with three minute teeth; the hepatic region slightly raised, with three or four distinct granulations; the anterior portion of the branchial with the same number of similar ones near the margin; latero-anterior margin smooth; latero-posterior granulated, bordered above with a line of short woolly hair; thoracic sinus deep, strongly waved above, the inferior margin granulated, passing into the posterior marginal line, which is turned up, flattened and crenate. Eyes visible from above. External foot-jaws simple and smooth. Abdomen of the female broad oval, the division of the third, fourth and fifth segments indicated by grooves

interrupted in the middle. First pair of legs rather short and thick; the arm covered with distinct round tubercles, which are largest near the base, which part is slightly hairy between the tubercles; wrist granulated; hand tumid, scarcely longer than broad, with a slight granulated carina on the outer and inner margins; fingers flattened, carinated on the outer side, without perceptible tubercles or teeth, and meeting only at the points.

Length of the carapace 0·6 in.

Colour light brown; the spots on the carapace small, of an angular form, and red colour; a large red spot on the upper surface of the hand.

A single female specimen was found by Mr. Macgillivray on the eastern coast of Australia.

This is a very remarkable species, not only from its general form and character, but particularly as being almost the only one of the genus which exhibits the slightest appearance of hairiness or clothing of any kind.

*LEUCOSIA CUMINGII*, mihi (TAB. XXXI. fig. 3). Testâ suborbiculari, margine lævi; sinu thoracico incisurâ inter regiones hepaticam et branchialem anticè terminato; regionibus branchialibus valdè tumidis.

*Hab.* ad insulas Philippinas. Mus. Brit.

Carapace suborbicular, of equal length and breadth; the margin rounded, not granulated; front obtuse, rounded; thoracic sinus deep, terminating anteriorly in a deep notch, corresponding with an incision in the margin between the hepatic and branchial regions; the latter region very tumid. Pedipalps rather broad, the outer margin slightly curved. Anterior legs stout, the arm short, with tubercles at the base and sides, beneath with a triangular area smooth; wrist rounded; hand nearly as broad as it is long, slightly carinated at the sides; fingers meeting only at the points, the moveable one grooved longitudinally.

Length of carapace 0·5 in.

Colour; the carapace pale yellowish-white, with yellow markings. The fingers marked with a transverse brown fascia; the hand with a small brown spot near the articulation of the moveable finger; and the abdomen with orange-coloured spots on the anterior part.

One of the most remarkable of the genus, and distinguished at once by the deep notch behind the hepatic region and the swollen form of the branchial.

*LEUCOSIA PULCHELLA*, mihi (TAB. XXXI. fig. 4). Testâ æquè longâ ac latâ, margine laterali lævi, tenui, subreflexo; brachiis suprâ et infrâ omninò tuberculatis; pedipalpis externis anticè paulò angustatis.

*Hab.* in mari Sinensi. Mus. Brit.

Carapace rhomboidal, as broad as it is long, the lateral margin without granulations, thin, expanded and slightly reflexed; thoracic sinus narrow, without granulations; front obtuse, either slightly emarginate or rounded. External foot-jaws nearly as broad at the apex as at the base. Anterior legs rather short; the arm entirely covered with tubercles above and underneath; wrist subglobose, with a few granulations at the inner side; hand



as broad as it is long, acutely carinated on each side, tumid in the centre; fingers flattened, triangular. Abdomen (male) broadly triangular.

Colour buff and white, beautifully mottled in some specimens, in one elegantly reticulated.

Length of carapace 0.4 in.

Of this pretty little species there are three specimens in the British Museum, from the Chinese Seas. It is easily recognizable at first sight by the thin, somewhat reflexed, smooth margin of the carapace, and the wholly granulated surface of the arms, characters which I believe do not exist in any other species of the genus. The buccal opening, and consequently the external foot-jaws, are remarkably broad anteriorly.

LEUCOSIA PHYLLOCHEIRA, mihi (TAB. XXXI. fig. 5). Manibus latioribus quam longioribus, utrinque lamellatis; pedibus omnibus posterioribus articulo penultimo lato, compresso, utrinque carinato.

Hab. ad insulam Borneo. Mus. Brit.

Carapace somewhat rhomboidal, as broad as the postfrontal portion is long; front very projecting, slightly emarginate, strongly carinated at the base, with a deep hollow on each side; thoracic sinus terminating in a marginal notch, above and in front of the insertion of the first pair of legs. External foot-jaws nearly half the length of the whole body. Anterior legs shorter than the carapace, the arm bordered with tubercles. Wrist small and rounded; hand broader than it is long, with a broad, flat, thin, laminated carina on each side; fingers rather broad, flattened, the immovable one carinated beneath. The remaining feet with the fourth joint toothed along the under side, the fifth with a single tooth above, the penultimate short, flattened, and having a thin carina on each side, the terminal one lanceolate.

Length of carapace 0.4 in.

This is certainly the most extraordinary known species of *Leucosia*. The form of the legs, and particularly of the hands, which suggested the name, at once distinguishes it from all others; but the most remarkable anomaly in its structure is the extent of the buccal opening, and the corresponding development of the external foot-jaws, the length of which nearly equals that of the portion of the body posterior to them. This peculiarity will be appreciated when it is recollected that in the normal forms the relative proportion is not more than one in three. Whether this structure has any relation to the habits of the species, we have no means of ascertaining; but it would appear probable that such a marked anomaly could scarcely exist in mere obedience to those abstract laws of structural variation, which are often as difficult of solution as they are certain in fact.

A single male specimen from Borneo is in the British Museum.

#### Genus ILIA, Leach.

CHAR. GEN.—*Testa* subglobosa, posticè dentibus quatuor armata, quarum utrinque una compressa ad regionem intestinalem, et una conica ad branchialem; fronte bifido. *Orbita* suprâ fissuris duabus. *Pedipalpi externi* caule exteriori recto, apice obtuso. *Pedes antici* longissimi, graciles, manibus contortis, antrorsùm angustatis.

ILIA NUCLEUS, Auct. Testâ minutè confertè granulosâ, granulis majoribus distantibus instructâ.

*Cancer Nucleus*, Linn. Syst. Nat. 1042. 20. Herbst, i. p. 87. t. 2. f. 14.

*Leucosia Nucleus*, Fabr. Suppl. p. 351. Latr. Hist. Nat. Crust. vi. p. 116.

*Ilia Nucleus*, Leach, Zool. Misc. iii. p. 24. Roux, Crust. de la Méditerr. t. 8. f. 1-8. Edw. Règ. Anim. de Cuv., Crust. t. 25. f. 2; Hist. Nat. Crust. ii. p. 124.

*Hab.* ad oras maris Mediterranei.

ILIA RUGULOSA, Roux. Testâ glabrâ, sparsim granulosâ, anticè lævi.

*Ilia rugulosa*, Roux, l. c. t. 8. f. 9-12. Edw. l. c. p. 125.

*Hab.* cum præcedente.

I refer to the admirable figures by Roux, in his 'Histoire des Crustacés de la Méditerranée,' for a clear exposition of the characters of these two species, the only ones of the genus yet known. I cannot believe that *Ilia punctata* of Edwards belongs to this genus at all. The figure in Herbst of *Cancer punctatus*, on which he has partly founded it, is undoubtedly that of a species of *Myra*, as is shown even by the form of the pedipalps, and it may possibly be that of *M. carinata* of this memoir. The species provisionally named *Ilia Mariannæ* by Herklotz, and figured by him from a specimen in the Louvain Museum, is obviously not an *Ilia*. The foot-jaws and abdomen it appears were wanting in the specimen, so that it would be difficult to state what may be its generic relation; but it has the appearance of *Myra*, or still more of *Myrodes*; or it may possibly offer a new generic type, as suggested by the author above-named.

#### Genus PERSEPHONA, Leach.

CHAR. GEN.—*Testa* ovalis vel orbicularis, depressa, dentibus tribus ad partem posteriorem armata, regionibus pterygostomianis angulatis. *Orbita* trifissa. *Fossæ antennariæ* transversæ. *Pedipalpi externi* caule exteriori paulo dilatato, sensim angustiore, ad apicem internè truncato. *Pedes antici* robusti, testâ haud bis longiores; *reliqui* articulis ultimo et penultimo compressis. *Abdomen* MARIS segmentis a tertio ad quintum,—FEMINÆ a quarto ad sextum coalitis.

The characters of this genus and those of the species named by Leach were so imperfectly given by him, in the 'Zoological Miscellany,' that Milne-Edwards, not having access to the specimens themselves from which they were derived, was fain to content himself with simply translating them, being wholly unaware that they referred to a previously well-known species, and in fact he gave to that species the generic name of *Guaia*. I have, I believe, been able successfully to unravel this complication by an examination of the numerous specimens in the British Museum, to which Leach's names were attached.

PERSEPHONA GUAIA, Bell. Testâ ovatâ, sparsim tuberculatâ, angulo pterygostomiano obtusissimo, spinâ mediâ posticâ lateralibus paulò altiore.

*Cancer punctatus*, Browne, Hist. Jamaica, i. t. 42. f. 3.

*Cancrejo tortuga*, Parra, Descrip. &c. t. 51. f. 2.

*Cancer Mediterraneus*, Herbst, ii. t. 37. f. 2.

*Persephona Latreillii*, Leach, Zool. Misc. iii. p. 22. Desmar. Cons. sur les Crust. p. 168.



*Persephona Lamarckii*, Leach, *l. c.* p. 23. Desmar. *l. c.* p. 168.

*Guaia punctata*, Edw. *l. c.* p. 127.

*Hab.* ad insulas Antillas.

After a careful collation of the specimens in the British Museum, I have found myself compelled to come to the conclusion, that all those which had been designated by Dr. Leach as of two distinct species, and named respectively *P. Latreillii* and *P. Lamarckii*, are in fact specifically identical. They vary only in a slight degree in the prominence of the angular ridge on the pterygostomian region; and even his own specific distinction goes no further than the meagre expression, in the one case, "angulis *subangulatim* dilatatis," and in the other, "angulis *antieis gradatim et obtusè dilatatis.*" It appears that all the specimens which were in the collection at that period were entirely faded, so as to have lost that striking and beautiful marking which would have enabled him to identify them with Herbst's figure. Browne gives no indication of these markings, either in his figure or in the letter-press. It is also remarkable that Leach should have been unaware that those specimens were originally in the Sloanian Collection, and therefore brought from the West Indies. As the nomenclature has thus become confused, I have ventured to change the specific name; and retaining the generic one given by Dr. Leach, have adopted for the species the name *Guaia*, which Milne-Edwards had applied generically.

I find that in this genus, as well as in many others, the relative position of the three posterior spines affords a very fixed as well as tangible specific character. In the present species, the middle spine is but little higher than the lateral ones, which are very distant; whilst in *Lichtensteinii* the three are much nearer to each other, and form almost an equilateral triangle.

PERSEPHONA LICHTENSTEINII, Leach (TAB. XXXI. fig. 6). Testâ orbiculari, angulo pterygostomiano in dente producto, margine laterali unidentato; spinis posticis æqualibus, medio eum lateralibus triangulum æquilateralem designante.

*Persephona Lichtensteinii*, Leach, Zool. Miscell. iii. p. 22.

*Hab.* —? Mus. Brit. ♂ et ♀.

Carapace orbicular, depressed, sparsely granulated; the pterygostomian angle produced into a prominent tubercle or tooth; another on the lateral margin on each side; the three posterior spines equal, and so placed as to form the points of an equilateral triangle. Front broad and nearly straight. External foot-jaws with the inner stalk in the male nearly plain, with only a slight longitudinal groove; in the female more deeply grooved towards the inner margin. Anterior legs more slender than in the other species. The arm wholly covered with small tubercles: a line of granules on the outer side of the wrist. The two specimens in the British Museum are a male and a female; unfortunately, the abdomen is wanting in each.

Length of carapace 1·2 in.

It is remarkable that the two specimens above referred to in the British Museum are the only ones known of this species. There is no figure extant, nor any account of it beyond the meagre definition given by Leach in the 'Zoological Miscellany,' and which is

in fact scarcely intelligible. It is a remarkable and interesting form, and in its orbicular outline resembles two new species which are in my collection, from the Western Coasts of America. It differs from all others of the genus in having a tooth or produced tubercle, on each side, on the margin of the carapace.

*PERSEPHONA ORBICULARIS*, mihi (TAB. XXXI. fig. 7). Testâ orbiculari, angulo pterygostomiano in tubereulo abruptè producto; spinis posticis æqualibus, angulum ferè reectum designantibus.

*Hab.* ad Valparaiso. Mus. Bell.

Carapace orbicular, the latero-anterior margin slightly waved, the regions rather distinct, surface somewhat punctate, with numerous minute granules, which are more thickly crowded on the lateral margin and on the posterior portion; the front with a very slight triangular notch; pterygostomian angle produced into a distinct tubercle; the three posterior spines short, acute, recurved, the upper one forming with the two inferior almost a right angle. External pedipalps with the stalk grooved longitudinally, and in the female the inner grooved portion separated from the outer by a ciliated ridge. Anterior legs, with the arm, wholly tuberculated, the wrist granulated; fingers the length of the arm. Abdomen (female) with the first three segments, and the base and margin of the shield, tuberculated.

The colour is dull yellowish, regularly mottled with dull and pale red.

Length of carapace 1.5 in.

The only specimen I am acquainted with of this species is a female, which was brought from Valparaiso by Mr. Miller, Surgeon R.N., and is in my collection.

*PERSEPHONA EDWARDSII*, mihi (TAB. XXXI. fig. 8). Testâ suborbiculari, anticè subproductâ, angulo pterygostomiano obsolete; spinâ posticâ mediâ lateralibus multò altiore, paulò longiore.

*Hab.* ad insulas Galapagos. Mus. Bell.

Carapace nearly orbicular, somewhat produced and narrowed anteriorly, minutely punctate, covered, excepting at the anterior portion, with very small distinct granules, of which a distinct line borders the latero-anterior portion; the anterior margin waved, the pterygostomian angle obsolete, marked only by a slight elevation. Front broad, slightly emarginate; lateral and posterior margin much rounded, the spines placed in nearly a right-angled triangle, nearly equal, recurved at the apex. Anterior legs with the arm everywhere tuberculated, the wrist slightly granulated on the inner side, the hand minutely punctate. External pedipalps as in *P. orbicularis*. Abdomen (female) slightly granulated at the posterior and lateral portions.

Colour pale buff.

Length of carapace 1.3 in.

Of this species two specimens were brought by Mr. Cuming from the Galapagos. They were dredged in coral sand at 6 fathoms.

I have dedicated this species to my friend Professor Milne-Edwards.



## Genus LEUCOSILIA, Bell.

CHAR. GEN.—*Testa* orbicularis, subglobosa, fronte dentibus binis divergentibus terminatâ; regione intestinali unidentatâ. *Fossæ antennariæ* obliquæ, e dentibus frontis excavatæ. *Orbita* fissuris tribus. *Pedipalpi externi* caule exteriori subcurvo apice obtuso. *Pedes antici* robusti, longitudine mediocres. *Abdomen* MARIS segmentis tertio, quarto, quinto coalitis, penultimo unidentato,—FEMINÆ latè ovatum, valdè convexum.

Species unica, LEUCOSILIA JURINII (TAB. XXXII. fig. 1).

*Guaia (Ilia) Jurinii*, Sauss.

*Hab.* ad insulas Galapagos. Muss. Brit., Bell.

Carapace orbicular, very convex, the sides rounded, the surface covered with large contiguous granulations, excepting on the frontal and part of the hepatic regions, which are smooth: there is a small elevation on each hepatic region. The front with two small, triangular, divergent teeth, forming the hood-shaped roof of the antennary fossæ, which are oblique and open. Orbits with three small fissures. There is a single obtuse tooth or tubercle on the intestinal region. External pedipalps with the outer branch very slightly curved, not dilated as in *Myra*, nor narrowed forwards as in *Persephona*, but with nearly parallel margins. Abdomen in the male very long, triangular, the penultimate segment with a strong, sharp tooth directed backwards; in the female broad oval, very convex, with a broad central earina. The whole body above and below, with the exception before stated, covered with large granulations. Anterior legs much resembling those in *Persephona*, half as long again as the carapace, the arm granulated, the hand short and thick, the fingers very slightly curved, armed with very small distinct tubercles, the points crossing a little when closed.

Length of carapace 0·8 in.

The grounds upon which I have considered it necessary to constitute this species a separate genus from those with which it is most nearly allied, particularly from *Persephona*, are perhaps rather to be found in its general habit and aspect, than in any very prominent distinctions in the structure of those organs upon which the generic characters are usually understood to depend; although even in these essential respects there are sufficient peculiarities to justify the separation. It is impossible not to be struck at first sight with the remarkable globular form of the body in each sex, so different from the oval form of *Myra* and of the male of *Persephona*, as well as from the depressed character of both sexes of the latter genus; whilst the existence of only a single small tubercle on the posterior part of the carapace removes it obviously from all the species of both these genera, which have invariably three teeth at that part; and from *Ilia*, in which there are four. The general form of the body approaches the last-named genus more than any other, but in its more important characters it is essentially different from it. From *Persephona* it differs in the form of the antennary fossæ, and consequently in that of the front, the two teeth of which form the roof of those cavities in the present genus.

This species appears to be the same as that which has received from M. de Saussure the name of "*Guaia (Ilia) Jurinii*," and there are several specimens in the British Museum

to which that name has been attached. The specimens in my possession were taken by Mr. Cuming at the Galapagos Islands.

### Genus MYRA, Leach.

CHAR. GEN.—*Testa* ovato-globosa, posticè tridentata. *Orbita* fissuris tribus profundis. *Fossæ antennariæ* obliquæ. *Pedipalpi externi* caule exteriori ad marginem exteriorem dilatato. *Pedes antici* longissimi, graciles, manibus rectis. *Abdomen* MARIS segmentis a tertio ad sextum,—FEMINÆ a quarto ad sextum coalitis.

Of this genus a single species only has hitherto been described; namely, *Myra fugax* of Leach (*Leucosia fugax*, Fabr.). To this I have now to add four new species, of all of which there are specimens in the collection of the British Museum and my own. In this genus there is a close resemblance on the one hand to *Ilia*, and on the other to *Persephona*. To the former it is connected by *M. fugax*, and to the latter by *M. mammillaris*; but from both it is distinguished by characters sufficiently marked. From *Ilia* it is at once known by the absence of the peculiar twist of the hand, and from *Persephona* by the dilatation of the external stalk of the pedipalps. The five species are all natives of the Eastern Seas.

MYRA FUGAX, Fabr. Testâ subglobosâ, in medio elevatâ, non carinatâ, spinâ posticâ mediâ lateralibus bis longiore, spinis lateralibus compressis.

? Rumph. Mus. t. 10. f. C.

? Browne, Jam. t. 42. f. 3.

?? *Cancer punctatus*, Linn. Syst. Nat. p. 1054. 36. ? Herbst, i. p. 89. t. 2. f. 15, 16.

*Leucosia fugax*, Fabr. Suppl. p. 351.

*Myra fugax*, Leach, Zool. Misc. iii. p. 24. Edw. Hist. Nat. des Crust. ii. p. 126; Règ. Anim. Cuv.; Crust. t. 25. f. 3. De Haan, Crust. Japon. p. 134. t. 33. f. 1.

*Hab.* in mari orientali.

There is considerable doubt as to the identity of this species with the figures above referred to of Brown and Herbst, as well as with the *Cancer punctatus* of Linnæus. The figure of Herbst very possibly belongs to *M. carinata* of this paper.

MYRA AFFINIS, mihi (TAB. XXXII. fig. 2). Testâ ovato-globosâ, spinis posticis brevibus, subæqualibus; pedibus anticis thorace vix bis longioribus; manu digitis tertiâ parte longiore.

*Hab.* ad insulas Philippinas. Mus. Brit.

This species very much resembles *M. fugax*, but differs in several obvious characters, shown in the following comparative view:—

MYRA FUGAX.	MYRA AFFINIS.
Anterior legs in the male three and a half times as long as the carapace.	Anterior legs not twice as long as the carapace.
Fingers half the length of the hand.	Fingers two-thirds the length of the hand.
Middle spine long, acute.	All the spines short and obtuse.
Male abdomen more than twice as long as it is broad.	Male abdomen much less than twice as long as broad.



These characters, taken in both cases from males, are constant, as far as we can judge from the examination of several specimens in the British Museum.

Length of carapace 1·3 in.

MYRA CARINATA, mihi (TAB. XXXII. fig. 3). Testâ ovatâ, minutè granulatâ, carinatâ; spinâ posticâ mediâ lateralibus ter quaterve longiore, lateralibus conicis, acutis.

?? *Cancer punctatus*, Herbst.

?? *Ilia punctata*, Edw. Hist. Nat. Crust. ii. p. 125.

Hab. ad insulas Philippinas. Muss. Brit., Bell.

Carapace ovate, minutely granulated, particularly at the posterior part, distinctly but slightly carinated along the centre; the hepatic ridge and lateral margin granulated, the former having a small tubercle; the pterygostomian tooth broadly triangular; the central spine on the intestinal region at least three times as long as the lateral ones, which are conical and acute. The anterior pair of legs in the female twice the length of the carapace, exclusive of the spine; the arm covered with tubercles; the hand slightly tumid near the base, but less so than in *M. fugax*, narrowed forwards; fingers closed throughout their length, finely toothed. Abdomen in the female with the fourth, fifth and sixth segments united, as in *M. fugax*.

Length of carapace 1 in.

The most obvious distinction between the present species and the one previously known, consists in the carinated form of the carapace, which, although not very strongly marked, is quite distinct, and differs obviously from the rounded surface of *M. fugax*. Another important distinction is in the comparative length of the three spines on the hinder part of the carapace, the central one being in the present species so much longer in proportion to the lateral ones than it is in the former. Whether this is the species figured by Herbst as *Cancer punctatus* I am not sure, but it resembles very closely his figures assigned to that species. As Professor Milne-Edwards refers to that authority for his *Ilia punctata*, and as those figures certainly do not represent an *Ilia* at all, I am inclined to doubt the existence of such a species of that genus, and to refer it to *Myra*.

MYRA ELEGANS, mihi (TAB. XXXII. fig. 4). Testâ bis longiore quam latiore (spinâ posticâ non inclusâ), margine anteriore setoso.

Hab. in mari orientali. Mus. Brit.

Carapace oval, twice as long as broad, the central posterior spine nearly half the length of the carapace, the lateral ones extremely small; a slight longitudinal carina, which is granulated, and there are patches of granules on the branchial and cardiac regions; front produced, slightly emarginate. From the front to the hepatic region the margin has a line of stiff curved setæ. External pedipalps quite plain; the outer margin of the palp less dilated than in other species. The legs very slender; the arm granulated. The fingers longer than the hand; the four posterior pairs of feet, particularly the fifth pair, with the last two joints strongly ciliated. Abdomen of imperfect female oval, with the third to the fifth segments united.

Length of carapace, without the spine, 0·4 in.; of the spine, 0·2 in.

Of this small and gracile species, one specimen, an imperfect female, exists in the

British Museum. It has a *primá facie* resemblance to a young *M. carinata*, but differs from that species in its proportions, in the arrangement of the granules, in the hairy line on the anterior margin, and in the ultimate and penultimate joints of the posterior feet being ciliated.

MYRA MAMMILLARIS, mihi (TAB. XXXII. fig. 5). Testá ovatá, glabrâ, tubereulis parvis elevatis sparsim instructâ; dentibus posticis brevissimis, rotundatis.

*Hab.* ad oras Australiæ. Muss. Brit., Bell.

Carapæe oval, somewhat produced before and behind, the surface polished, and studded with numerous small distinct globular tubereles, which also form a line along the middle of the back, around the margin, on the hepatic region, and on the pterygostomian crest. Front somewhat waved, slightly emarginate, a small tooth over the inner canthus of the orbit. The teeth on the posterior part rounded, not longer than broad, the lateral ones compressed. External foot-jaws tubereulated on the anterior portion, the palp somewhat dilated outwards. Sternum with lines of minute tubercles anteriorly. First pair of legs in the male twice the length of the carapace, stouter than in the other species of the genus; the arm covered with depressed tubereles; a scabrous line on the inner margin of the wrist, and on the outer and inner edge of the hand; the fingers half the length of the hand, sulcated and scabrous. The remaining legs filiform, slender, the surface punctated, the terminal joint awl-shaped, sulcated.

Length of carapæe 2 in.

Of this fine species there are several specimens in the British Museum and in my own collection. It was brought from South Australia. Its *primá facie* relation to *Persephona* is striking, but it differs from that genus in the essential generic characters, particularly in the form of the hand, and of the palp of the external foot-jaws.

*Myra variegata* of Rüppell (Krabben des Roth. Meeres, p. 17. t. 4. f. 4) is not a *Myra*, but is probably a young individual of a species of *Philyra*.

#### Genus MYRODES, Bell.

CHAR. GEN.—*Testa* ovata, rostro emarginato terminata, posticè dentibus tribus, quarum media longior, armata. *Orbita* fissuris tribus, brevibus. *Fossæ antennariæ* ferè longitudinales. *Pedipalpi externi* caule exteriore subcurvo, haud dilatato. *Pedes antici* testá vix longiores; manibus pyriformibus, haud longioribus quam latoribus; digitis tenuibus valdè elongatis, curvis, apice aduncis. *Abdomen* MARIS triangulare, segmentis tertio ad sextum coalitis,—FÆMINÆ —?

This genus, which is nearly allied to *Myra*, differs from it in the following particulars. The antennary fossæ are less oblique in their direction, being so placed that the antennules lie nearly longitudinally. The palp of the external foot-jaws is merely curved on its outer edge, instead of being first dilated and then distinctly narrowed towards the apex, as in *Myra*. But the most remarkable peculiarity is in the form and length of the anterior legs, which in *Myra* are almost filiform, and, even in the female, more than twice as long as the carapæe; whilst in the present genus they are not longer than that part, if in both cases we except the fingers. The hand especially, which in *Myra* is always many times longer than it is broad (in *M. fugax* ♂ not less than seven times), is in *Myrodes* as



broad as it is long. The fingers differ from those in any other genus of the family, with the exception of *Nursilia*, in their beautiful tenuity, their curvature, and their hooked points, which cross each other considerably when closed.

This genus may be considered as bearing the same relation to *Myra*, as *Leucosilia* does to *Persephona*; and as *Myra* and *Persephona* represent each other in the different hemispheres, so may *Myrodes* and *Leucosilia*.

Species unica, MYRODES EUDACTYLUS, mihi (TAB. XXXII. fig. 6).

*Hab.* ad insulas Philippinas. Muss. Brit., Bell.

Carapace minutely and sparsely granulated, distinctly but slightly carinated; hepatic region with a small ridge, and a marginal tooth; cardiac region separated from the branchial on each side by a slight depression; the posterior teeth rather small, the middle one the longest and placed a little higher than the others. Rostrum distinct, bifid, the two tooth-like projections forming the covering of the antennary fossæ, which are very open. External foot-jaws with the palp evenly curved on the outer edge, but without the dilatation which characterizes *Myra*. Anterior legs short, the arm minutely granulated; hand swollen at the base, narrowed forwards, as broad as it is long; the fingers slender, elegantly curved, longer than the hand, armed with sharp teeth and hooked at the extremity. Abdomen in the immature female lanceolate, with a rather broad shallow carina.

Length of carapace 0·9 in.

This beautiful species was brought by Mr. Cuming from the Philippines.

#### Genus PHILYRA, Leach.

CHAR. GEN.—*Testa* orbicularis, depressa, inermis, fronte epistomate brevior. *Fossæ antennariæ* ferè transversales. *Orbita* suprâ aperta, trifissa. *Pedipalpi externi* caule exteriori dilatato. *Pedes octo posteriores* tarso compresso, lamelloso. *Abdomen* MARIS hastato-lanceolatum,—FÆMINÆ articulo ultimo angusto valdè producto.

The character which has hitherto been considered as the essential one in this genus, namely the extraordinary dilatation of the palp of the foot-jaws, varies greatly in degree in the different species now known; the outline in some being scarcely less than semi-circular, whilst in others it is not more curved than in *Myra*. This is another instance of the importance of taking into account the whole organization of the animal, instead of depending upon a single character of a single organ. The form of the carapace, the absence of all armature, the character of the legs and other parts, are in the present instance quite as important, and even more to be relied on, than the form of the palp of the external foot-jaws.

PHILYRA SCABRIUSCULA, Fabr. Testâ depressâ, granuloso-scabrâ, fronte epistomate multò brevior; brachiis tuberculatis, manibus ad marginem interiorem lineis duabus granulatis.

*Hab.* in mari Indico. Muss. Brit., Soc. Linn., Bell.

*Vide* Edw. Hist. Nat. Crust. ii. p. 132. t. 20. f. 9, 10.

PHILYRA GLOBULOSA, Fabr. Testâ globosâ, lævi, margine laterali granulato; fronte vix epistomate brevior, brachiis granulatis.

Hab. —? Mus. Brit.

Vide Edw. Règne Anim. Cuv. t. 24. f. 4.

PHILYRA PORCELLANA, Fabr. Testâ globosâ, minutè punctatâ; fronte epistomate parùm brevior; margine granulato; brachiis cylindricis tuberculatis; manibus inflatis, lævibus.

Hab. —?

A specie præcedente anne distincta?

Vide Edw. Hist. Nat. Crust. ii. p. 133.

It appears that Leach considered this as not specifically distinct from *Ph. globulosa*, which is very probably correct.

PHILYRA PISUM, De Haan. “Fronte epistomate parùm brevior; regionibus pterygostomianis medio angulatis; thorace granulato; chelis in maribus thoracem dimidio superantibus; digitis in longitudinem 5 sulcatis, margine interno denticulatis.” Testæ longit. unc. 0·8.

Crust. Japon. p. 131. t. 33. f. 7.

Hab. ad Japoniæ oras.

PHILYRA PLATYCHEIRA, De Haan. “Parva; regionibus pterygostomianis medio angulatis; fronte epistomate parùm brevior; chelis in maribus thorace bis longioribus, digitis valdè depressis, lævibus, margine interno integerrimis.” Testæ longit. unc. 0·5.

Crust. Japon. p. 135. t. 33. f. 6.

Hab. cum præcedente et ad insulas Philippinas. Mus. Bell.

Of the foregoing species I have only seen specimens of the first two and of the last. Of *Ph. scabriuscula* there are several in the Banksian Collection of the Linnean Society, in the British Museum, and in my own collection. *Philyra globulosa* is in the British Museum; and of *Ph. platycheira* I have a specimen from the Philippines. I have endeavoured to select those characters which are essentially distinctive. Those of De Haan's two new species, I have taken verbatim from his work.

PHILYRA LÆVIS, mihi (TAB. XXXII. fig. 7). Testâ, corpore, pedibus omninò lævibus.

Hab. ad Portum “Adelaide” Australiæ. Mus. Brit., Bell.

Carapace orbicular, smooth, but not polished; lateral margin thin, with a minute notch between the hepatic and branchial regions succeeded by a very slight angle, a minute projection over the second and another over the fifth pair of legs, and a small semicircular one on the middle of the intestinal region, the posterior margin flattened and turned up. Front with two small acute teeth in the centre, and two broader ones at the inner canthus of the orbit. The epistome not extending beyond the front. A rather prominent ridge on the pterygostomian region, which is without any granulations. The external foot-jaws with the palp dilated at the outer side, and then narrowed towards the apex; the buccal



opening a little expanding forwards. Anterior legs in the male robust, rather more than twice the length of the carapace; the arm cylindrical, entirely smooth; the wrist and hand smooth and polished; the latter somewhat tumid; the fingers as long as the hand, longitudinally grooved, armed with tubercles on the opposing edges, with a hiatus at their base. The anterior legs of the female much shorter and smaller than in the male. The remaining feet quite smooth and polished, the penultimate joint flattened, and with sharp edges; the nail long and styliiform. Abdomen in the male with the first two segments waved, the third, fourth, fifth and sixth united, and forming, with the seventh, an elongated triangle somewhat hastate at the base, where there are two large elevations, and there is a broad groove along the centre. In the female the second to the sixth joints are united, forming a large, very convex shield, and the seventh joint, which is very narrow, is produced almost to the edge of the buccal orifice.

Colour brown, with several small yellow spots placed symmetrically, four of which are constant, and occupy the same situation as those which so distinctly characterize *Leucosia*, and which do not, I believe, exist in any others of the family.

Length of carapace 0·9 in.

I have received a large number of this interesting species from Port Adelaide in South Australia. The males and females were nearly equal in number. It may be at once distinguished from every other hitherto known, by the absence of all appearance of granulations on every part of the body, and even on the arms. There are also some specimens in the British Museum, from Van Diemen's Land, which differ from mine only in the less degree of prominence of the tubercles on the male abdomen.

*PHILYRA ADAMSII*, mihi (TAB. XXXIII. fig. 1). Testâ glabrâ, regionibus partim et lineâ longitudinali granulatis; margine posteriore utrinque bituberculato.

*Hab.* —? Mus. Brit.

The carapace of this little species is depressed, glabrous, with a granulated longitudinal line and patches upon several of the regions, which are separated by shallow sulci; front emarginate, posterior margin with two or three small tubercles on each side. External pedipalps with the palp not much dilated. Anterior legs more than twice the length of the carapace; arm subtriangular, tuberculated above and below; a line of small granules on the outer side of the wrist; hand with a slight external and internal carina granulated; fingers sulcated. Male abdomen composed of four pieces, by the union of the second, third and fourth and of the fifth and sixth segments.

Length of carapace 0·4 in.

Obtained during the voyage of the Samarang, by Mr. Adams, after which indefatigable and intelligent naturalist I have named the species.

*PHILYRA PUNCTATA*, mihi (TAB. XXXIII. fig. 2). Testâ orbiculari, lævi, punctatâ; angulo pterygostomiano obsolete; brachiis triquetris.

*Hab.* ad oras Africae occidentalis. Mus. Brit.

Carapace nearly orbicular, smooth, punctate in every part; the margin distinct, with a

line of granulations; the pterygostomian angle scarcely existing. External foot-jaws with the palp moderately expanded. Anterior legs of moderate length, the arms triquetrous, minutely granulated; the hand smooth, half as long again as it is broad, the fingers very slightly toothed. Abdomen (male) with the third, fourth and fifth segments united; the others distinct.

Length of carapace 0.5 in.

It was dredged in Simon's Bay, South Africa, in sand, at the depth of from four to seven fathoms.

This species bears a considerable resemblance to *Ph. globulosa*. It is however much smaller, and is readily distinguished by the three-sided arm, and the less expanded palp of the foot-jaws.

PHILYRA CARINATA, mihi (TAB. XXXIII. fig. 3). Testâ partim granulosâ, inter regiones cardiacam et branchialem lævi, medio carinatâ; manibus lineis duabus granulosis.

*Hab.* ad Insulam Borneo. Mus. Brit.

Carapace rather longer than broad, evenly rounded, partially covered with distinct granulations of various sizes, a broad space between the cardiac and branchial regions quite smooth, a slight carina along the middle, margin distinct and granulated; front nearly straight, slightly grooved. External foot-jaws with the palp but little dilated. Anterior legs of moderate size, the arm angular, granulated, excepting a long angular area which is smooth; hand as broad as it is long, with a line of small granulations on the upper surface and on the inner margin. Abdomen with only the fourth and fifth articulations united.

Length of carapace 0.6 in.

Distinct from all others by the carina on the carapace.

PHILYRA MACROPHALMA, mihi (TAB. XXXIII. fig. 4). Testâ ovatâ, minutissimè granulâtâ; pedunculis oculorum elongatis; abomine (maris) angusto, lineari.

*Hab.* in mari Indico, ad Ins. "Sooloo." Mus. Brit.

Carapace ovate, narrowed posteriorly, covered with very minute granulations; front nearly straight, grooved; pterygostomian angle carinated; margin distinct, granulated. Eyes on foot-stalks as long as the front is broad, projecting forwards. Foot-jaws with the palp much dilated externally. Anterior legs short, smooth; hand as broad as it is long, fingers stout, strongly tuberculated at the edge, with a hiatus between them near the base; remaining feet with the last two joints ciliated.

Abdomen (male) nearly linear, bituberculated at the base.

Length of carapace 0.5 in.

The most remarkable character in this species is the length of the foot-stalks of the eyes, which is far greater than in any other of the family which I have seen. The linear form of the male abdomen is also remarkable.



## Genus EBALIA, Leach.

CHAR. GEN.—*Testa* rhomboidalis vel subhexagona; fronte producto, emarginato. *Orbita* suprâ fissuris duabus. *Fossæ antennariæ* tectæ, obliquæ. *Pedipalpi externi* ad marginem epistomatis extendentes, caule exteriori margine externo recto, interiore acuminato. *Pedes antici* breves, crassi; *posteriores* sensim breviores, ungue forti, styliformi terminati. *Abdomen* MARIS segmentis plurimis,—FÆMINÆ a tertio ad sextum confluentibus.

Of this genus the three species most commonly known are natives of the coast of Great Britain. The only other form to which it closely approximates is *Lithadia*. It was established by Leach, and is a perfectly natural and distinct genus. Dr. Milne-Edwards's opinion that our three forms are merely varieties cannot be admitted. The distinctions are tangible and constant.

EBALIA PENNANTII, Leach. *Testâ* granulatâ, eminentiâ longitudinali et transversali cruciformi; margine latero-anteriore bilobato; abdomine maris segmentis a tertio ad sextum confluentibus.

*Cancer tuberosus*, Penn. Brit. Zool. iv. t. 9 a. f. 19.

*Ebalia Pennantii*, Leach, Malac. Brit. t. 25. f. 1-6. Edw. Hist. Nat. des Crust. ii. p. 129. Bell, Brit. Crust. p. 141.

*Hab.* ad oras Britannicæ. Muss. Brit., Bell.

The largest species of the genus.

EBALIA BRYERI, Leach. *Testâ* minutè granulatâ; margine laterali integro, subrevoluto, posteriore bilobato; regione cardiacâ bituberculatâ, branchiali utrinque unituberculatâ; brachio haud bis longiore quam latiore. *Abdomen* maris segmentis a tertio ad quintum,—fœminæ a tertio ad quartum coalitis.

*Cancer tumefactus*, Mont. Trans. Linn. Soc. ix. p. 86. t. 2. f. 3.

*Ebalia Bryerii*, Leach, Malac. Brit. t. 25. figg. 12, 13. Edw. l. c. p. 129. Bell, Brit. Crust. p. 145.

*Hab.* ad oras Britannicæ australes. Muss. Brit., Bell.

EBALIA CRANCHII, Leach. *Testâ* granulatâ, carinatâ, tuberculis quinque; margine latero-anteriore ferè integro; brachio ter longiore quam latiore.

*Ebalia Cranchii*, Leach, Malac. Brit. t. 25. f. 7-11. Edw. l. c. p. 129. Bell, Brit. Crust. p. 148.

*Hab.* ad oras Britannicæ rarissimè. Muss. Brit., Bell.

EBALIA GRANULOSA, Edw. (TAB. XXXIII. fig. 5). *Testâ* granulatâ, tuberculis sex; margine latero-anteriore bilobo.

*Ebalia granulosa*, Edw. l. c. p. 130.

*Hab.* ad insulam Corcyram. Mus. Brit.

Two specimens of this rare and very distinct species are in the British Museum; they were brought from the Island of Corfu.

## Genus PHLYXIA, Bell.

CHAR. GEN.—*Testa* rhomboidea, tuberculis tribus posticè instructa. *Orbita* suprâ emarginata, fissuris duabus. *Fossæ antennariæ* cum orbitis communicantes. *Antennulæ* elongatæ. *Pedipalpi externi* caule

exteriore lato, margine externo curvo, anticè angustato; caule interiore segmento penultimo lateribus parallelis, ultimo triangulari. *Abdomen* in utroque sexu segmentis a tertio ad sextum coalitis.

A genus very nearly allied to *Ebalia*, but distinguished from it by several obvious characters; as the three tubercles on the posterior margin of the carapace, the rounded notch in the superior margin of the orbits, the communication of these cavities with the antennary fossæ, and the form of the external foot-jaws. There are three species in the British Museum, two of which are from Port Jackson, and the third from New Zealand. The latter, *P. lævis*, differs considerably from the other two, but must be referred to the same genus.

PHLYXIA CRASSIPES, mihi (TAB. XXXIV. fig. 2). Testâ subcarinatâ, rostro quadrato, quadridentato; pedibus anticis testâ plus quam duplò longioribus; brachiis rotundis medio tumescentibus.

*Hab.* ad oras Australiæ orientales. Mus. Brit.

Carapace rhomboidal, slightly carinated, the rostrum prominent, with four minute teeth, depressed in the centre; a triangular tooth on the margin of the hepatic region, and three slight projections on that of the branchial; posterior margin with three teeth, the central one conical, and placed a little above the other two, which are broadly triangular. Eyes conspicuous above; orbits with a broad rounded notch, and two small fissures. External foot-jaws smooth, the basal segment elongated, with parallel sides, the second joint of the stalk rhomboid, with a process where it joins the basal; terminal joint triangular; palp broad at the base, slightly curved on the outer margin, narrowed forwards; anterior legs twice and a half the length of the carapace; arm smooth, round, slightly thickened above the middle; wrist curved, smooth; the hand twice as long as it is broad, rounded, the fingers greatly deflexed, flattened, nearly as long as the hand, the moveable one with a notch near the base to receive a broad tubercle on the other; the remaining legs diminishing regularly in length from the second to the fifth, the joints slightly tumid, carinated on each side, the nail very long, slender and curved. Abdomen in each sex with the third to the sixth joints united, in the male lanceolate triangular, in the female with the shield formed by the united joints very round, the seventh joint very small and distinct from the others.

Length of carapace 0.5 in.

There are three specimens of this species in the British Museum, brought from Port Jackson. It may be considered as the type of the genus.

PHLYXIA LAMBIFORMIS, mihi (TAB. XXXIV. fig. 1). Testâ carinatâ, rostro triangulari emarginato, margine latero-anteriore inciso, latero-posteriore acutè carinato.

*Hab.* ad oras Australiæ orientales. Mus. Brit.

Carapace rhomboidal, approaching to orbicular, granulose, tuberculated, carinated, the margin with a strong notch between the hepatic and branchial regions, an obtuse tooth on the former, and a sharp carina on the latter; of the three posterior teeth, the one on the intestinal region is acute and recurved, the marginal ones conical; anterior legs nearly twice as long as the carapace, rather slender, the fingers slightly deflexed.



PHLYXIA LÆVIS, mihi (TAB. XXXIV. fig. 3). Brachiis triedris; testâ lævi, margine laterali unidentato.

*Hab.* ad Novam Zeelandiam. Mus. Brit.

Carapace rhomboidal, smooth, rostrum obtuse, slightly emarginate; margin of the branchial region with a single minute tooth, posterior margin with three obtuse teeth; anterior legs not twice as long as the carapace; arm three-sided, triangular, granulated; hand half the length of the arm, smooth, slightly carinated on the outer side, fingers hardly deflexed.

Length of carapace 0·4 in.

The generic characters are much less strongly marked in this species than in either of the others, but the form of the foot-jaws, the three teeth on the posterior margin of the carapace, its rhomboidal form and other points of structure, sufficiently show its close relation to them. It may be considered perhaps as osculant between this genus and *Ebalia*.

#### Genus LITHADIA, Bell.

*Testa* rhomboidea, rudis, regionibus gibbosis, rostro bifido, resupinato terminata. *Orbita* suprâ et extrorsum aperta. *Fossæ antennariæ* obliquæ. *Pedipalpi externi* caule exteriori ensiformi, anticè obtuso; interiore lanceolato, exteriori longiore. *Pedes antici* robusti, rudes; brachiis tuberculatis, ad marginem exteriorem cristatis; manibus cristatis, digitis approximatis. *Abdomen* MARIS segmentis tertio, quarto et quinto coalitis; FÆMINÆ — ?

The grounds upon which I have thought it necessary to assign a distinct generic rank to the species to which the above characters belong, closely allied as it is to *Ebalia*, are the extremely different general aspect of the whole animal, arising from the rough and strong prominence of the different regions, the projecting spines, the large and prominent granulations, so unlike any other form in this family, excepting *Oreophorus*, and some distinct though not very striking differences in the form of the external foot-jaws, the legs, and particularly the abdomen in the male.

Species unica, LITHADIA CUMINGII, mihi (TAB. XXXIII. figs. 6, 7).

*Hab.* ad oras Americæ centralis (Puerto Portrero). Mus. Bell.

Carapace very strongly marked by rude elevations, sharply circumscribing deep hollows. In the younger specimen of the two in my possession, the elevations are more numerous and distinct, and the sulci separating them are continuous; the difference in the older specimen arising from the confluence of several of these elevations, by which the sulci become merely four irregular circumscribed hollows, covered within with distinct granulations\*. Posterior branchial lobe forming a triangular tooth; posterior lobes of the cardiac region similarly modified. Rostrum slightly turned up, emarginate.

\* This difference is so remarkable, that the specimens might be considered as of distinct species were there not other instances of similar variations in the surface, either from difference of age or from some ordinary law of variety. The tubercles, for example, which in the normal form of *Eurynome aspera* are quite separate, and are distributed very equally and distinctly over the carapace, are occasionally more or less confluent, forming a few tabulated surfaces; and it has, in this state, been described by Risso as a distinct species, under the name of *Eu. scutellata*. I have specimens exhibiting intermediate states.

External foot-jaws, sternum and abdomen covered with distinct large and elevated granulations. Abdomen in the male elongate triangular; the first and second segments transversely linear, the third, fourth and fifth united, with a minute tooth at the posterior angles, two rounded elevations on the hinder portion, and a slight mesial carina; the sixth segment oblong quadrate, the posterior margin armed with a strong tooth projecting backwards. First pair of legs very irregular, the arms tuberculated and granular; the hand nearly as broad as it is long, distinctly earinated on the outer side; fingers nearly touching each other throughout their whole length, and slightly tuberculated.

Colour pale brown; the hollows of the carapace grey: there are four minute red dots on the abdomen.

Length of carapace 0·7 in., breadth 0·6.

Two specimens (males) were obtained by Mr. Cuming, at Puerto Portrero, Central America, on fine sand, at thirteen fathoms.

#### Genus OREOPHORUS, Rüppell.

CHAR. GEN.—*Testa* tuberosa, posticè supra pedes dilatata. *Fossæ antennariæ* obliquæ. *Pedipalpi externi* caule exteriori arcuato, apicem versus sensim angustiore. *Pedes anteriores* longi, robusti; *octo posteriores* subæquales, sub scuto dorsali reconditi. *Abdomen* MARIS?—FÆMINÆ latè ovatum, segmentis à tertio ad sextum coalitis.

This genus, established by Rüppell, constitutes the sole form of the present family which can be considered as offering a distinct approach to any other in its general characters. Its relation to the *Calappadæ*, and particularly to the typical genus of that family; has been already adverted to; and the principal character by which it is allied to that group, and by which also the genus *Calappa* is distinguished from its congeners, namely the latero-posterior expansion of the carapace, by which the ambulatory legs are capable of being concealed, obtains in all the species at present known. The species first discovered, and on which the genus was founded by Dr. Rüppell, was described and figured by him in his work on the Crustacea of the Red Sea. A second species was obtained by Mr. Adams in the Straits of Sunda, and appears in the Natural History (Crustacea) of the Voyage of the Samarang; and a single specimen of a third, now first described, the habitat of which is unknown, exists in the British Museum.

There is a certain approach to this genus in the general aspect of *Lithadia*, particularly in the hollows and elevations of the shell.

OREOPHORUS HORRIDUS, Rüppell. *Testâ* subtriangulatâ, regionibus branchialibus fortiter et obliquè earinatis; ehelis medioeribus, manu digitis longiore.

*Oreophorus horridus*, Rüppell, Krab. der Roth. Meer. p. 19. t. 4. f. 5. Edw. Hist. Nat. Crust. ii. p. 131. *Hab.* in Mari Rubro.

The discovery of two other species since Rüppell's publication has rendered a new specific distinctive character necessary. The strong deep earina extending obliquely across each branchial region distinguishes it from both the others, and the comparatively normal form of the claws from *O. reticulatus*.



OREOPHORUS RETICULATUS, Adams and White. Testâ subpentagonâ, reticulatâ; digitis maximis, manu bis longioribus.

*Oreophorus reticulatus*, Adams and White, Crust. Voy. of the Samarang, p. 54. t. 6. f. 1.

*Hab.* in Mari orientali. Mus. Brit.

Readily distinguished from the other species by the enormous development of the fingers, the immoveable one being half as long as it is broad, and both twice as long as the hand. It is beautifully figured in the work above referred to.

OREOPHORUS NODOSUS, mihi (TAB. XXXIII. fig. 8). Testâ nodosâ, margine undato; manu tumidâ, ad margines carinatâ, bisuleatâ, digitis longiore.

*Hab.* —? Mus. Brit.

Carapace generally rugose, but without the deep hollows which are seen in *O. reticulatus*, or the regular elevated carinæ on the branchial region of *O. horridus*. It is of a general semicircular form, with irregularly waved margin, a strong projection on the hepatic region, a large prominence on the anterior, and a double one on the posterior part of the branchial region; front emarginate. External pedipalps with the outer stalk slightly arched; the inner with a longitudinal groove close to the inner edge, and a slight carina along the middle line. Anterior legs of moderate length and size, the arm nodose, the hand inflated, with two longitudinal sulci, and an external and internal carina; the fingers slender, curved, and shorter than the hand. The abdomen is wanting in the only specimen known, which is a male.

Length of carapace 0·7 in.; breadth 0·8.

The specimen in the British Museum is, I think, doubtless an old and faded one, and is consequently thin and slight compared with its original condition. It is of a delicate pink colour.

#### Genus NURSIA, Leach.

CHAR. GEN.—*Testa* polyhedra, fronte producto. *Orbita* extrorsum aperta. *Fossæ antennariæ* transversæ. *Pedipalpi externi* caule exteriori curvo, dilatato, anticè et posticè obtuso; caule interiore margine interno recto, articulo penultimo quadrato, ultimo triangulâri. *Pedes anticî* digitis deflexis. *Abdomen* MARIS articulo penultimo apicem prope processu dentiformi instructum.

NURSIA PLICATA, Herbst (TAB. XXXIV. fig. 4). Testâ utrinque 4-dentatâ, medio tuberculis tribus triangulum delineantibus, posticè lineâ elevatâ transversâ tuberculum gerente, fronte 4-dentato.

*Cancer plicatus*, Herbst, iii. No. 253. t. 59. f. 2.

*Nursia Hardwickii*, Leach, Zool. Misc. iii. p. 20.

*Hab.* in oceano Indico. Mus. Brit.

Carapace somewhat broader than it is long, produced anteriorly, granulated; a notch between the hepatic and branchial regions, the latter tumid, broadly margined, the margin with four obtusely triangular dentiform projections, of which the posterior are the most prominent, projecting considerably beyond the line continued from the lateral margin of the carapace. The anterior regions are carinated, and an elevated line runs between the hepatic and branchial regions, each terminating in a tubercle, which, with its fellow

and a single tubercle on the cardiac region, forms an equilateral triangle; a transverse elevated line crosses the posterior part of the branchial and the cardiac regions, on the centre of which is the single tubercle just mentioned, and another elevated line crosses the posterior part of the carapace, also having a tubercle on the centre.

Length of carapace 0·5 in.

I have no doubt whatever that Herbst's figure belongs to this species. It is considerably broader in proportion to the length than the specimens in the British Museum, but these also differ in this respect from each other. I have restored Herbst's name, which I do with the less hesitation, as his is the only original figure which has hitherto appeared, and we have no other original notice of the species than the short but correct and expressive description given by Leach. I have also given a figure of the species on account of the imperfection of that of Herbst. The specimens in the British Museum, which are the only ones with which I am acquainted, were brought from India by the late General Hardwicke. These differ among themselves in some particulars, but, as it appears to me, not sufficiently to justify a specific distinction.

*NURSIA ABBREVIATA*, mihi (TAB. XXXIV. fig. 5). Testâ orbiculari, margine undato, lineâ elevatâ longitudinali, alterâ transversali decussatâ; fronte integro.

*Hab.* in oceano Indico. Mus. Brit.

Carapace very flat, nearly orbicular, the front slightly projecting, entire; the margin granulated and waved, forming seven slight rounded prominences, exclusive of the front; an obtuse elevated line runs down the middle of the carapace from the front to the cardiac region, crossed by a transverse one which is granulated, commencing between the anterior and posterior lobes of the branchial region, and crossing over the genital. The anterior legs (in the female) are of moderate length, the hand not one-third longer than broad, with two granulated lines on the upper side; the fingers short, meeting at the greater part of their length, but with a hiatus near the base. The external foot-jaws have the outer stalk or palp considerably curved, rounded at each extremity; the inner stalk with the internal margin straight, meeting its fellow the whole length. The abdomen in the female (the only sex I have seen) broad ovate, the fourth, fifth and sixth segments united, and indications of them in slight transverse depressions.

Length of carapace 0·4 in.

#### Genus *NURSILIA*, Bell.

**CHAR. GEN.**—*Testa* latior quam longior, margine polygono, fronte producto. *Orbita* bifissa, extrorsum aperta. *Fossæ antennariæ* obliquæ. *Pedipalpi externi* epistomati superantes, caule exteriori curvo, medio dilatato; interiori elongato, margine interno arcuato. *Pedes antici* graciles, manu tumidâ, digitis curvis dentatis manu longioribus. *Abdomen* MARIS —?—FEMINÆ valdè convexum, articulo ultimo inter bases pedipalporum externorum producto.

This genus has a close affinity with *Nursia*, but differs from it in the form of the pedipalps, the interior margin of which is curved, so that a space exists between them excepting at the apex; the anterior legs are much more slender, and the form of the hand and fingers is very different, resembling almost exactly that of *Myrodes*.



Species unica, NURSILIA DENTATA, mihi (TAB. XXXIV. fig. 6).

Hab. in oceano Indico. Mus. Brit.

Carapace rather broader than long, the margin laminated; a slight fissure between the hepatic and branchial regions, an obtusely triangular tooth on the margin of the former, and three slight angular projections on the latter; several small projecting teeth on the surface of the carapace, and a longitudinal carina, on the posterior half of which are three strong spines curved forwards; an elevated line on the branchial region. External foot-jaws extending forwards to the frontal margin, meeting only at the apex, and leaving an interspace, the posterior part of which is filled by the last joint of the abdomen. The anterior legs are long and slender, the hand tumid on the proximal portion; the fingers longer than the hand, very slender, curved at the extremity, and finely toothed. The abdomen of the female extremely convex, the terminal joint somewhat triangular, and extending forwards between the base of the foot-jaws.

A single specimen, a female, is in the British Museum.

#### Genus ARCANIA, Leach.

CHAR. GEN.—*Testa* globulosa, spinis seu tuberculis elevatis plurimis armata. *Orbita* suprâ et extrorsum aperta. *Fossæ antennariæ* longitudinales. *Pedipalpi externi* caule exteriori recto, lineari, apice interiore emarginato-truncato; caule interiore gradatim acuminato. *Pedes antici* gracillimi. *Abdomen* MARIS lanceolatum, segmentis a tertio ad sextum vel ad quintum coalitis.

This genus is closely allied to *Iphis*, from which it differs in the more globular form of the body, in the number and character of the spines with which it is armed, and in the form of the external foot-jaws.

ARCANIA ERINACEUS, Herbst. Corpore atque membris densè spinosis, spinis spinulosis.

*Cancer Erinaceus*, Herbst, t. 20. f. 111.

*Leucosia Erinaceus*, Fabr. Suppl. p. 352.

*Arcania Erinaceus*, Leach, Zool. Miscell. iii. p. 24. Edw. Crust. ii. p. 134.

Hab. in mari Indico. Muss. Brit., Soc. Linn., Bell.

A well-known species, figured by Herbst and by several subsequent authors. It differs from other species in the numerous spines with which it is armed, and in the spines being themselves spinulose.

ARCANIA UNDECIM-SPINOSA, De Haan. "Thorace spinuloso, spinulis obtusis, ambitu 11-spinoso, spinis acutis simplicibus; brachiis granulatis, digitis manibus longioribus."

De Haan, Crust. Japon. p. 135. t. 33. f. 8.

Hab. in Japoniâ.

ARCANIA NOVEM-SPINOSA, Adams and White. "Thorace lævi, granuloso, marginibus latero-anterioribus spinis duabus, latero-posterioribus spinis duabus, posteriore spinâ longâ rectâ."

*Iphis novem-spinosa*, Adams and White, Crust. of the Voyage of the Samarang, p. 56. t. 13. f. 1.

A close examination of the specimen in the British Muscum, described by Messrs. Adams and White as "*Iphis*," has fully confirmed the impression I had received from their figure that this is a true *Arcania*. Its general form is that of this genus, differing greatly from that of *Iphis*; and its resemblance to *A. undecim-spinosa* of De Haan is very close. In fact it scarcely differs excepting in the number of spines.

ARCANIA SEPTEM-SPINOSA, mihi (TAB. XXXIV. fig. 7). Testâ globulosâ, paulò latiore quam longiore, tuberculatâ, spinis septem tuberculatis armatâ, laterali utrinque reliquis longiore.

*Hab.* —? Mus. Brit.

Approaching *Iphis* in form, particularly in the transverse diameter of the carapace a little exceeding the longitudinal, and being furnished with two lateral spines longer than the others. The spines in this species, as in *Arc. tuberculata* and *Erinaceus*, are themselves tuberculated. The posterior pair of marginal spines, which are flattened, show this character in a very beautiful manner, as is seen in the figure (*d*). The anterior legs are slender, the arm slightly curved, covered with tubercles; the hand smooth, swollen at the proximal portion; the fingers very thin, curved, nearly as long as the hand, toothed, and meeting only at the points. The remaining feet are wanting in the specimen, excepting one, and the rest have been added in outline in the figure, from the nearly allied species.

Length of carapace 0·4 in.

ARCANIA TUBERCULATA, mihi (TAB. XXXIV. fig. 8). Testâ paulò longiore quam latiore, omninò tuberculatâ, margine spinis novem tuberculatis instructo; brachiis granulatis, manibus lævibus.

*Hab.* ad ins. Borneo. Mus. Brit.

Carapace subglobose, covered with various-sized tubercles; at the lateral and posterior margin there are nine spines occupying the same situations as those in the larger species, and obviously replacing them; these spines are themselves tuberculated. The whole of the under surface is granulated, as is the arm; the hand quite smooth.

Length of carapace 0·4 in.

ARCANIA GRACILIPES, mihi (TAB. XXXIV. fig. 9). Testâ granulosâ, tuberculis quindecim suprâ, et tribus ad marginem posteriorem instructâ; pedibus anticis tenuissimis.

*Hab.* ad ins. Borneo. Mus. Brit.

The whole carapace is granulated; there are fifteen distinct tubercles on the upper part and sides, and three on the posterior margin. The anterior feet are extremely slender, the fingers as long as the hand, and meeting only at the points.

Length of the carapace 0·3 in.

ARCANIA LÆVIMANA, mihi (TAB. XXXIV. fig. 10). Testâ granulatâ, tuberculis numeros distinctis, ad marginem spinis novem simplicibus armatâ; manibus glabris.

*Hab.* ad insulas Philippinas. Mus. Brit.



Readily distinguished from the two former species by the number and character of the tubercles, and from *Arc. tuberculata* by the spines being simple.

Length of carapace 0·4 in.

Of each of the last four species of *Arcania*, there is a single specimen in the British Museum. From their small size, it is not improbable that some of them are young, but certainly not of any previously described species.

#### Genus IPHIS, Leach,

CHAR. GEN.—*Testa* rhomboidalis, transversa, angulis rotundatis, utrinque spinâ longissimâ horizontali armata, fronte emarginato. *Orbita* aperta, bifissa. *Antennulæ* ferè longitudinaliter inflexæ. *Pedipalpi externi* caule interiore sublineari, anticè paulò angustiore. *Pedes* filiformes, graciles.

This genus is at once distinguished from *Arcania* by the rhomboidal form of the carapace, in which it somewhat resembles *Ebalia*. Its nearest affinity however is to *Arcania*, which it approaches in the armature of the periphery of the carapace, in the foot-jaws, the feet and other parts. One species of this genus only is at present known, viz.

#### IPHIS SEPTEM-SPINOSA, Herbst.

*Cancer septem-spinosus*, Fabr. Mantissa, i. p. 325. Herbst, i. t. 20. f. 112.

*Leucosia septem-spinosa*, Fabr. Suppl. p. 351.

*Iphis septem-spinosa*, Leach, Zool. Miscell. iii. p. 25. Edw. Hist. Nat. Crust. ii. p. 139.

*Iphis novem-spinosa* of Adams and White is referred to the genus *Arcania*.

#### Genus IXA, Leach.

CHAR. GEN.—*Testa* elliptico-rhomboidalis, processu utrinque subcylindrico à regione branchiali producto; regionibus sulco profundo separatis. *Orbita* suprâ bifissa. *Pedipalpi externi* caule exteriori lato, obtuso, interiore longiore. *Pedes* omnes filiformes, tenues. *Abdomen* FÆMINÆ articulo ultimo usque ad oris aperturam producto.

#### Species unica, IXA CYLINDRUS, Fabr.

*Cancer Cyllindrus*, Fabr. Mantissa, 251. Herbst, i. p. 108. t. 2. f. 29, 30, 31.

*Leucosia Cyllindrus*, Fabr. Suppl. 352. Latr. Hist. Nat. Crust. vi. p. 119. Licht. Berl. Mag. 1815, p. 143.

*Ixa Cyllindrus*, Leach, Trans. Linn. Soc. xi. p. 334.

*Ixa canaliculata*, Leach, Zool. Misc. iii. p. 26. t. 129. f. 1. Edw. Règ. Anim. Cuv., Crust. t. 24. f. 1; *Id.* Hist. Nat. Crust. ii. p. 135.

*Ixa megaspis*, Adams and White, Voyage of the Samarang, Crust. p. 55. t. 12. f. 1.

(Senior) *Ixa inermis*, Leach, *l. c.* t. 129. f. 2. Edw. Hist. Nat. Crust. ii. p. 135.

*Hab.* in mari Indico. Muss. Brit., Soc. Linn., Bell.

A careful examination of all the specimens of this genus to which I have access, amounting to about twelve, has led me to conclude that they all belong to one species. The variations which exist between any two of them are nearly as great as those which have given rise to the establishment of a distinct specific name in the case of *I. megaspis* of Messrs. Adams and White. I possess two specimens which were obtained by Mr. Hinds, which differ so much from others, that until I had carefully examined the whole of those I have alluded to, I had provisionally given them a distinct specific name.

The form and size of the lateral process vary considerably. In some it is cylindrical, in others it is somewhat conical; in some it is either direct or even bent slightly backwards, in others the apex is turned forward; in some there is a filiform appendage at its apex, in others there is not a vestige of this armature. The degree of granulation of the different parts also varies.

With respect to *I. inermis* of Leach, I see no difference but what might be supposed to depend upon great age; and the distinction is really less on examining the actual specimens, than appears to be the case from merely a comparison of the figures. Under these circumstances, I have ventured to give the references to the three supposed species, as synonyms of the old *Cancer Cylindrus* of Fabricius.

I have already observed that the genus *Harrovia* of Adams and White has no relation whatever to the present family. *Iphiculus* of the same authors, arranged by them amongst the LEUCOSIADÆ, but stated in the same place to belong to the PARTHENOPIDÆ, appears to me to be nearly allied to the former family, and most probably associated with them. Certainly it has no near affinity with the PARTHENOPIDÆ. *Tlos* may be safely considered as allied to the LEUCOSIADÆ. Unfortunately, neither the eyes, the orbits, the antennulæ, the antennary fossæ, nor the foot-jaws, are mentioned in the generic characters, or figured in the plates. See the Crustacea of the Voyage of the Samarang, pp. 55, 57. pl. 12. f. 5, pl. 13. f. 2. 5.

It is only since the foregoing paper has been in the press, that I have had an opportunity of seeing the magnificent work of Mr. James D. Dana, on the Crustacea obtained in the United States exploring expedition under the command of Mr. Charles Wilkes of the United States Navy. This work reflects equal credit on the author, and on the American Government for the liberal and handsome manner in which it has been published.

In this publication two species only are described as belonging to the present family, and of these one appears to me at least very doubtful as to its relation to it. I shall quote the characters of both as they are given by Mr. Dana:—

“IPHIS LONGIPES. Carapax parvè granulosus, suborbicularis, non latior quam longus [longior], armatus spinis duabus longissimis lateralibus latitudine carapacis vix brevioribus (unâ in latere utroque) et duabus minutis antero-lateralibus, duabus parvulis postero-lateralibus, et unâ posticâ corporis dimidium longitudine ferè æquante. Frons bilobatus parvè prominens. Pedes 8 postici prælongi.”

*Iphis longipes*, Dana in *op. cit.* p. 396. t. 25. f. 4.

“Taken from the stomach of a Tetraodon, among the reefs of Viti Lebu, Feejee Islands.”

Of this species I have only to observe, that its form and characters rather tend to increase a doubt which I have before entertained of the propriety of generically separating the species of *Iphis* and *Arcania*. They appear to pass into each other by the present species on the one hand, and by *Iphis novem-spinosa* of Adams and White, which I have already transferred to *Arcania*, on the other.



## Genus NUCIA, Dana.

“Carapax parcè transversus, anticè non productus, latere non dilatatus, inermis, superficie paulò tuberculatus, fronte bilobatus et non saliens. Oculi paulò remoti, grandiores, marginales. Area buccalis benè triangulata. Maxillipedis externi articulus 3tius triangulatus; palpus angustus, extùs rectus. Pedes toti breves, et crassi, digiti in plano subverticali claudente, eodem cum manus articulatione.”

NUCIA SPECIOSA, Dana, *l. c.* p. 397. t. 25. f. 5.

It is unnecessary to quote the description of the only species upon which this genus is founded. It appears to me that it is scarcely admissible into the family of LEUCOSIADÆ, on account of the extraordinary size of the eyes, the thickness of the legs, and other characters, no less than the general form and aspect of the body. I give this opinion with deference in the absence of an actual specimen.

## EXPLANATION OF THE PLATES.

## TAB. XXX.

- Fig. 1. *Leucosia orbicularis*. a. side view of the carapace; b. male abdomen; c. female abdomen.  
 Fig. 2. *Leucosia pallida*. a. side view; b. female abdomen.  
 Fig. 3. *Leucosia obscura*. a. side view; b. male abdomen; c. female abdomen.  
 Fig. 4. *Leucosia marmorea*. a. side view; b. male abdomen.  
 Fig. 5. *Leucosia punctata*. a. side view; b. anterior leg; c. male abdomen.  
 Fig. 6. *Leucosia affinis*. a. side view; b. anterior leg; c. male abdomen; d. female abdomen.  
 Fig. 7. *Leucosia brevimana*. a. side view; b. female abdomen.  
 Fig. 8. *Leucosia margaritacea*. a. side view; b. anterior leg; c. male abdomen.

## TAB. XXXI.

- Fig. 1. *Leucosia ocellata*. a. side view; b. anterior leg; c. female abdomen.  
 Fig. 2. *Leucosia Whitei*. a. side view; b. anterior leg; c. female abdomen.  
 Fig. 3. *Leucosia Cumingii*. a. side view; b. anterior leg; c. female abdomen.  
 Fig. 4. *Leucosia pulchella*. a. side view; b. anterior leg; c. male abdomen; d. female abdomen.  
 Fig. 5. *Leucosia phyllocheira*. a. side view; b. anterior leg; c. posterior leg.  
 Fig. 6. *Persephona Lichtensteini*. a. side view.  
 Fig. 7. *Persephona orbicularis*. a. female abdomen.  
 Fig. 8. *Persephona Edwardsii*. a. female abdomen.

## TAB. XXXII.

- Fig. 1. *Leucosilia Jurinii*. a. side view; b. anterior leg; c. foot-jaw; d. male abdomen; e. female abdomen.  
 Fig. 2. *Myra affinis*. a. side view; b. male abdomen; c. female abdomen.  
 Fig. 3. *Myra carinata*. a. male abdomen.  
 Fig. 4. *Myra elegans*. a. side view; b. female abdomen.  
 Fig. 5. *Myra mammillaris*. a. male abdomen.  
 Fig. 6. *Myrodes eudactylus*. a. side view; b. anterior leg; c. foot-jaw; d. male abdomen; e. immature female abdomen.  
 Fig. 7. *Philyra levis*. a. side view; b. male abdomen.

## TAB. XXXIII.

- Fig. 1. *Philyra Adamsii*. *a.* side view; *b.* anterior leg; *c.* male abdomen.  
 Fig. 2. *Philyra punctata*. *a.* side view; *b.* male abdomen; *c.* female abdomen.  
 Fig. 3. *Philyra carinata*. *a.* side view; *b.* male abdomen.  
 Fig. 4. *Philyra macrophthalma*. *a.* side view; *b.* detached eye; *c.* male abdomen.  
 Fig. 5. *Ebalia granulosa*. *a.* anterior leg; *b.* posterior leg.  
 Fig. 6. *Lithadia Cumingii*. *a.* side view; *b.* anterior leg; *c.* foot-jaw; *d.* male abdomen.  
 Fig. 7. *Lithadia Cumingii*, jun. *a.* side view; *b.* anterior leg; *c.* foot-jaw.  
 Fig. 8. *Oreophorus nodosus*. *a.* posterior view of the carapace; *b.* anterior leg; *c.* posterior leg; *d.* foot-jaw.

## TAB. XXXIV.

- Fig. 1. *Phlyxia lambriformis*. *a.* side view; *b.* foot-jaw; *c.* antennary fossæ; *d.* male abdomen; *e.* female abdomen.  
 Fig. 2. *Phlyxia crassipes*. *a.* male abdomen.  
 Fig. 3. *Phlyxia lævis*. *a.* side view; *b.* male abdomen; *c.* female abdomen.  
 Fig. 4. *Nursia plicata*.  
 Fig. 5. *Nursia abbreviata*. *a.* antennary fossæ, orbits and foot-jaw; *b.* under side of body.  
 Fig. 6. *Nursilia dentata*. *a.* side view; *b.* antennary fossæ, orbits and foot-jaw; *c.* under side of body.  
 Fig. 7. *Arcania septem-spinosa*. *a.* anterior leg; *b.* female abdomen; *c.* one of the central tubereles enlarged; *d.* posterior spine enlarged.  
 Fig. 8. *Arcania tuberculata*. *a.* male abdomen.  
 Fig. 9. *Arcania gracilipes*. *a.* abdomen of immature female.  
 Fig. 10. *Arcania lævimana*. *a.* female abdomen.